BUSINESS SOLUTIONS

EarthCon Consultants, Inc.

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June 20, 2012

Ms. Mary C. Patton, P.E.
Director of Regulatory - NMSD
Range Production Company
100 Throckmorton Street, Suite 1200
Fort Worth, Texas 76102

Re: Implementation Report

First Quarterly Sampling Event – May 2012 Quarterly Residential Well Sampling Project Parker County, Texas EarthCon Project No. 212084.00

Dear Ms. Patton:

EarthCon Consultants, Inc. (EarthCon) is pleased to provide Range Production Company (Range) this report documenting implementation of the First Quarterly Sampling Event of the Quarterly Residential Well Sampling Project in Parker County, Texas.

All activities were conducted in accordance with EarthCon's April 25, 2012 Revised Scope of Work and Cost Estimate (2nd Revision) for Environmental Consulting Services (approved on April 27, 2012) and the Final Quarterly Residential Well Sampling Work Plan, dated May 7, 2012 (May 2012 Work Plan, see **Attachment 1**) submitted electronically to Range on May 8, 2012. This report specifically documents collection of water samples from residential wells and coordination with analytical laboratories; evaluation and interpretation of associated data were handled by other Range consultants, and hence, are not discussed in this report.

1.0 PREPARATORY ACTIVITIES

Upon receiving approval from Range, EarthCon contacted Accutest Laboratories (Accutest) and Milco Safety Rental to coordinate delivery to EarthCon's offices all needed sample containers, shipping materials and sampling equipment; coordination of delivery of sample containers and shipping materials from Isotech Laboratories (Isotech) was conducted through Mr. Alan Kornacki of Weatherford, a Range consultant.

Prior to initiating field activities, on May 9, 2012 EarthCon was provided by Mary Patton of Range a final schedule of visits for all wells/landowners listed in Table 1 of the May 2012 Work Plan that had provided authorization for sampling, except for well WW5 originally listed as owned by Mr. Brent A. Mauldin. As requested by Range, on May 12, 2012 EarthCon visited the Mauldin residence and determined that it had been recently purchased by Michael and Wendy Wells, who agreed to have

Ms. Mary C. Patton, P.E. Implementation Report First Quarterly Sampling Event – May 2012 Quarterly Residential Well Sampling Project Parker County, Texas

their well sampled; this information was communicated the same day via electronic mail to Ms. Patton (see **Attachment 2**).

2.0 FIELD ACTIVITIES

The EarthCon field crews mobilized to the project area on Thursday May 10, 2012, and commenced preparations for sampling, including acquiring sampling materials and calling the landowners to confirm the visits. Sampling occurred from Friday May 11, 2012 through Monday May 14, 2012 (including demobilization), and was performed in general accordance with protocols presented in detail in the May 2012 Work Plan; **Table 1** provides a summary of the samples collected.

The field work was conducted in Level D personal protective equipment (PPE), in accordance with a site-specific Health and Safety Plan (HASP), and after health and safety meetings were conducted at the start of each day. All ambient air readings demonstrated a safe environment with no health or safety concerns. No health or safety incidents occurred during EarthCon's sampling activities.

Well water samples were collected from existing sampling ports (e.g., spigots, tank inlet pipes, etc.) prior to softening or other modification/treatment of the water stream, using typical protocols presented in Appendix A of the May 2012 Work Plan. In a few instances, as noted in **Table 1**, pretreatment water samples could not be obtained due to the manner in which the well and water treatment infrastructure was constructed (i.e., piping from the wellhead was hard-plumbed to a water treatment/softening tank, or there was no ready access to pre-treated water). In such cases, treated water was collected from existing post-treatment spigots, or samples were collected inside treatment tanks at the inlet. In addition, in the cases of wells WW10, WW18 and WW20, where samples were collected from a tank inlet, the sample for analysis at Isotech could not be obtained from these three locations as there was no room to install a hose so that the laboratory-prescribed sampling protocol could be implemented; further, piping modifications were not contemplated per the May 2012 Work Plan. Additional well water samples were collected for quality control purposes; these samples consisted of: a field duplicate (at WW9); a matrix spike/matrix spike duplicate pair (at WW7); and two trip blanks (one for each shipped cooler containing samples for analysis of volatile constituents).

All samples were labeled, packaged per laboratory instructions, and shipped to Accutest and Isotech via common courier under chain-of-custody documentation. The labels and chain-of-custody forms identified the analyses required for each sample, as established in the May 2012 Work Plan.

Pertinent field observations and measurements were recorded in well-specific field forms; photographs taken at each sampling location. The completed field forms and photographic records are grouped per well and presented in **Attachment 3**.

3.0 LABORATORY COORDINATION

EarthCon confirmed receipt of all samples at Accutest and Isotech; in addition, for samples submitted for analysis at Accutest, the sample receipt forms were reviewed to verify that samples were received in good condition and were correctly logged for the appropriate analyses.



Ms. Mary C. Patton, P.E. Implementation Report First Quarterly Sampling Event – May 2012 Quarterly Residential Well Sampling Project Parker County, Texas

EarthCon's laboratory coordination activities concluded by verifying that all samples were analyzed within holding time and that all analytical results were provided; analytical data packages and summary tables were directly submitted to Range via electronic mail by Accutest, and are included in Attachment 4 for ease of reference.

4.0 **CLOSING**

EarthCon appreciates the opportunity to provide environmental consulting services to Range Production Company. Please do not hesitate to contact the undersigned at (281) 240-5200, if you have any questions regarding this report.

Sincerely,

Gobrietalopo

Earl H. Scott Project Principal Kathleen Buxton, P.G.

Sr. Geologist

Gobrietalowo

Gabriela P. Floreslovo Sr. Project Engineer

Enclosures:

Table 1 – Summary of Samples Collected – March 2012

Attachment 1 – Copy of April 2012 Work Plan

Attachment 2 - Message Documenting Verbal Agreement for Sampling WW5

Attachment 3 – Well-Specific Field Forms and Photographic Records

Attachment 4 – Well-Specific Data Packages and Summary Tables (as submitted by Accutest)



Table 1 Quarterly Residential Well Sampling Project Parker County, Texas First Quarterly Sampling Event Summary of Samples Collected - March 2012

#	Water Well Number (WW#)	Property Owner	Sample Collection Date	Water Condition	Sample Field Identification	Accutest Laboratory Data Package #	Comments
1	WW 1	Rodney & Geraldine Wells	5/14/2012	Un-treated	WWW01-WEL-051412	TC8548	
2	WW 2	Michelle Perdue	5/11/2012	Un-treated	WWW02-PER-051112	TC8199	
3	WW 4	Chandra D. Abbott	5/12/2012	Un-treated	WWW04-ABB-051212	TC8546	
4	WW 5	Michael and Wendy Wells	5/12/2012	Un-treated	WWW05-WEL-051212	TC8544	
5	WW 6	Amanda M. Thompson	5/13/2012	Un-treated	WWW06-THO-051312	TC8547	
6	WW 7	Jeff W. Merryman	5/11/2012	Un-treated	WWW07-MER-051112	TC8200	Volume for MS/MSD collected (Accutest)
7	WW 9	John Stites	5/11/2012	Un-treated	WWW09-STI-051112 Dup-051112	TC8198	Duplicate collected (Accutest)
8	WW 10	Devyn Hayley	5/12/2012	Treated	WWW10-HAY-051212	TC8540	Collecetd at tank inlet; therefore, sample for analysis at Isotech cannot be collected
9	WW 11	Harry & Margaret Anderson	5/11/2012	Un-treated	WWW11-AND-051112	TC8202	
10	WW 13	Tom Struths	5/12/2012	Un-treated	WWW13-STR-051212	TC8549	
11	WW 14A	Stephen & Carol Hurst	5/13/2012	Un-treated	WWW14A-HUR-051312	TC8543	
12	WW 15	Stephen & Carol Hurst	5/13/2012	Un-treated	WWW15-HUR-051312	TC8542	
13	WW 18	Thomas & Elizabeth Struths	5/12/2012	Treated	WWW18-STR-051212	TC8539	Collecetd at tank inlet; therefore, sample for analysis at Isotech cannot be collected
14	WW 19	Joseph & Rebecca Williams	5/13/2012	Un-treated	WWW19-WIL-051312	TC8537	
15	WW 20	Dennis Huffman	5/12/2012	Treated	WWW20-HUF-051212	TC8541	Collecetd at tank inlet; therefore, sample for analysis at Isotech cannot be collected
16	WW 21	Kirk & Brenda Van Newkirk	5/13/2012	Treated	WWW21-VAN-051312	TC8538	-
17	WW 22	Timothy & Sheryl Simpson	5/12/2012	Un-treated	WWW22-SIM-051212	TC8550	
18	WW 23	David & Gloria Husby	5/11/2012	Un-treated	WWW23-HUS-051112	TC8201	
19	WW 24	Pamela Smith	5/14/2012	Un-treated	WWW24-SMI-051412	TC8551	
20	WW 25	Jeff Mathews	5/12/2012	Un-treated	WWW25-MAT-051212	TC8545	
		Trip Blank	5/11/2012		TRIPBLANK_051112	TC8203	
		Trip Blank	5/12/2012		TRIPBLANK_051212	TC8536	



05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

First Quarterly Well Sampling, Parker County, TX

Accutest Job Number: TC8198

Sampling Date: 05/11/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420

Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 27



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul K Canevaro

Paul Canevaro Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Sample Summary

EarthCon Consultants

Job No: TC8198

First Quarterly Well Sampling, Parker County, Texas Project No: First Quarterly Well Sampling, Parker County, TX

Sample	Collected			Matr	ix	Client
Number	Date	Time By	Received	Code	Type	Sample ID
TC8198-1	05/11/12	13:42	05/12/12	AQ	Ground Water	WWW09-STI-051112
TC8198-2	05/11/12	00:00	05/12/12	AQ	Ground Water	DUP-051112





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8198

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 11:56:44 AM

2 Samples were collected on 05/11/2012 and received intact at Accutest on 05/12/2012 and properly preserved in 1 cooler at 4.7 Deg C. These samples received an Accutest job number of TC8198. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK328

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8200-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8201-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Res	ults	
Report of A		



Report of Analysis

Client Sample ID: WWW09-STI-051112

 Lab Sample ID:
 TC8198-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K07136.D	1	05/17/12	EM	n/a	n/a	VK328
Run #2							

Purge Volume Run #1 5.0 ml

Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3	Benzene Toluene	0.00025 U 0.00026 U	0.0010 0.0010	0.00025 0.00026	mg/l mg/l	
100-41-4	Ethylbenzene	0.00025 U	0.0010	0.00025	mg/l	
1330-20-7	Xylene (total)	0.00071 U	0.0030	0.00071	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7	Dibromofluoromethane	115%		79-122%		
17060-07-0	1,2-Dichloroethane-D4	106%		75-121%		
2037-26-5	Toluene-D8	109%		87-119%		
460-00-4	4-Bromofluorobenzene	102%		80-133%		

U = Not detected SDL - San

SDL - Sample Detection Limit

MQL = Method Quantitation Limit E = Indicates value exceeds calibration range J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW09-STI-051112

 Lab Sample ID:
 TC8198-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002581.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2	SS002582.D	50	05/21/12	FI	n/a	n/a	GSS131

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	2.44 a	0.025	0.015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.463 a	0.050	0.025	mg/l	J
74-98-6	Propane	0.186	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.0204	0.0015	0.00075	mg/l	
106-97-8	Butane	0.0387	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: DUP-051112

 Lab Sample ID:
 TC8198-2
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

File ID DF Analyzed By Prep Date Prep Batch Analytical Batch
Run #1 K07137.D 1 05/17/12 EM n/a n/a VK328

Run #2

Purge Volume

Run #1 5.0 ml

Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
CAS No. 1868-53-7 17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	Run# 1 114% 107% 108%	Run# 2	79-122% 75-121% 87-119%		

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: DUP-051112 Lab Sample ID: TC8198-2

 Lab Sample ID:
 TC8198-2
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002589.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2	SS002590.D	100	05/21/12	FI	n/a	n/a	GSS131

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	3.42 a	0.050	0.030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.050 U a	0.10	0.050	mg/l	
74-98-6	Propane	0.461	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.0524	0.0015	0.00075	mg/l	
106-97-8	Butane	0.0961	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

 $MQL = \ Method \ Quantitation \ Limit$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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3 Day RUSH REDT1 (Level 3*4) 2 Day RUSH Commercial "C" 1 Day EMERGENCY Commercial "A" = Results Only Emergency & Rush TIA data available VIA Lablink Commercial "S" = Results + QC Summary Results + QC Summary Results + QC Summary Commercial "S" = Re						-			,		2)		-			mat			-									
2 Day RUSH			***************************************			- Lancerson							لــا	J Oin														
The properties of the second o		Account to the contract of the								,																		
Emergency & Rush T/A data available V/A. Lablink Commercial "B" = Results + QC Summary Commercial "C" = Results + QC & Summary Sample Custody must be documented beloweach time samples change possession, including courier delivery.										nercia	ei "A" =	Res	sults C	Only														
Sample Custody must be documented below each time samples change possession, including courier delivery.																												
Sample custody must be documented belowed in this Samples Grading possession, including course derivery.				mala Custost :	uet he doc	onted b	olow occ												dolim	nn/			2010/201					
	Relie	quished by Sampler: Date Tim	11550	Received By:	VI .	icineu D	//	UH	n. odl	Rel	inquist	ed B	y _i) / /	1	.,,,,,,,,,	uniy t	Jui 16	Jenve	Date 2	ime; / /	-17	Receiv	ed By:		11	<u>*************************************</u>	

☐ Intact ☐ Not intact

> TC8198: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC8		Client: EARTHCON CONSULTANTS		Project:	Project: FIRST QUARTERLY WELL SAMPLING							
Date / Time Received:	5/12/201	12		Delivery Method:		:	FedEx Airbill #'s: 524976292500					
No. Coolers:	Т	herm I	D: IRGUN	5				Temp Adjus	tment Factor:	-0.5		
Cooler Temps (Initial/Ad	justed)	: <u>#1: (</u>	5.2/4.7)					-				
Cooler Security	Y oı	r N			<u> Y c</u>	or N	Sample Inte	egrity - Docume	entation	<u>Y</u>	or N	_
Custody Seals Present:	~			Present:	✓		1. Sample la	bels present on b	ottles:	~]
2. Custody Seals Intact:	✓		4. Smpl Da	tes/Time OK	✓		2. Container	labeling complete	e:	✓]
Cooler Temperature		Y or	N				3. Sample co	ontainer label / CC	OC agree:	✓]
Temp criteria achieved:		~					Sample Int	egrity - Conditi	on	<u>Y</u>	or N	_
2. Cooler temp verification:		Infare		-			1. Sample re	ecvd within HT:		~]
3. Cooler media:		Ice (Bag)				2. All contain	ners accounted for	=	✓]
uality Control Preserva	atio _	Y or	r N N/	<u>A</u>	WTB	STB	3. Condition	of sample:		Broke	n / Leakin	ng
1. Trip Blank present / coole	er:	✓			✓		Sample Int	egrity - Instruc	tions	<u>Y</u>	or N	N/A
2. Trip Blank listed on COC	:		•				1. Analysis r	requested is clear		~		
3. Samples preserved prope	erly:	✓					2. Bottles re	ceived for unspec	ified tests		✓	
4. VOCs headspace free:		y					3. Sufficient	volume recvd for	analysis:	✓		
							4. Composit	ting instructions cl	lear:			✓
							5. Filtering in	nstructions clear:				✓
Comments 1 VIAL BROKE Trip blank repo				WW09-STI-0	51112".							
Accutest Laboratories			***************************************				arwin Drive					Houston, TX

TC8198: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8198

5/15/2012 CSR: Elessa Sommers Response Date:

Response: Sufficient number of vials remain to perform the requested analysis. Trip blank reported in job TC8203.

TC8198: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8198

Date / Time Received: 5/12/2012

Initials: ians

Client: EARTHCON CONSULTANTS

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8198-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	5.2	-0.5	4.7
1	TC8198-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-2	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-2	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-2	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-2	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-2	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8198-2	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7

TC8198: Chain of Custody

Page 4 of 4



Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review checklist, and the following reportable data:

TC8198 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

	IX I	rield chain-oi-custody docum	entation,
	R2	Sample identification cross-re	ference;
	R3	Test reports (analytical data s	heets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data inclu	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms f	or blank samples;
	R6	Test reports/summary forms f	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicat	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation lin	nits (MQLs) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method f	or which the	laboratory does not hold NELA	C accreditation under the Texas Laboratory Accreditation Program.
Release	Statement	: I am responsible for the releas	e of this laboratory data package. This laboratory is NELAC accredited under the
Texas La	aboratory Ac	creditation Program for all the m	ethods, analytes, and matrices reported in this data package except as noted in
the Exce	ption Repor	t. This data package has been re	eviewed by the laboratory and is complete and technically compliant with the
requirem	ents of the i	nethods used, except where not	ed by the laboratory in the attached exception reports. By my signature below, I
affirm to	the best of r	ny knowledge, all problems/anoi	malies, observed by the laboratory as having the potential to affect the quality of
the data,	have been	identified by the laboratory in the	Laboratory Review Checklist, and no information or data have been knowingly
withheld.		•	
Check, i	f applicable	: This laboratory meets an exce	eption under 30 TAC&25.6 and was last inspection by
[]		[X1TCEQ or [1] on	April 2011. Any findings affecting the data in this laboratory data package are
			ts herein. The official signing the cover page of the report in which these data are
			ing this data package and is by signature affirming the above release statement
			5 , 5

Official Title (printed)

Laboratory Director

5/23/2012



	L	ABORATORY REVIEW CH	DATA					
Laboratory	/ Name:	Accutest Gulf Coast L	.RC Date:	5/2	3/20	12		
		First Overtante Well Committee						
Project Na	mo:	First Quarterly Well Sampling, Parker County, Texas	aboratory Project Number:	_ TC	8198	,		
Reviewer	Name:	•	Prep Batch Number(s):	+		VK32	8	
#1	I A ²	DESCRIPTION	Top Baton Hambor(o).					ER#5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
			dard conditions of sample acceptability	X			П	
		upon receipt?						
		•	ditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) ider						
			referenced to the laboratory ID numbers?	X				
		•	erenced to the corresponding QC data?	X				
R3	OI	Test reports					_	
		Were samples prepared and analyzed		X				
		other than those results <mql, all="" standards?<="" td="" were=""><td>Il other raw values bracketed by calibration</td><td>X</td><td></td><td></td><td></td><td></td></mql,>	Il other raw values bracketed by calibration	X				
		Were calculations checked by a peer or	r supervisor?	X				
		Were all analyte identifications checked	·	X			\dashv	
		Were sample detection limits reported f		X				
			amples reported on a dry weight basis?			Х		
	Were % moisture (or solids) reported for all soil and sediment samples? Were bulk soils/solids samples for volatile analysis extracted with methanol per					Χ		
						х		
	SW846 Method 5035? If required for the project, are TIC's reported?							
R4	0	Surrogate recovery data	orted?			Χ		
K4	 	Were surrogates added prior to extracti	ion?	Х				
	Were surrogate percent recoveries in all samples w R5 OI Test reports/summary forms for blank samples			T X				
R5								
		Were appropriate type(s) of blanks ana	•	Х				
		Were blanks analyzed at the appropriate	te frequency?	Х				
		Were method blanks taken through the	X					
		preparation and, if applicable, cleanup						
	01	Were blank concentrations <mql?< td=""><td>X</td><td>\perp</td><td></td><td></td><td>_</td></mql?<>	X	\perp			_	
R6	OI	Laboratory control samples (LCS): Were all COCs included in the LCS?	X					
		Was each LCS taken through the entire						
		cleanup steps?	o amary abar procedure, moraamig prop ama	X				
		Were LCSs analyzed at required freque	ency?	Х				
		Were LCS (and LCSD, if applicable) %	Rs within the laboratory QC limits?	Х				
			ata document the laboratory's capability to	X				2
		detect the COCs at the MDL used to ca	alculate the SDLs?	<u> ^</u>				
	<u> </u>	Was the LCSD RPD within QC limits?	Junicata (MCD) data			Χ		
R7	OI	Matrix spike (MS) and matrix spike d Were the project/method specified anal		X				
		Were MS/MSD analyzed at the appropri		l x			\dashv	
		Were MS (and MSD, if applicable) %R:		+^	Х			1
		Were the MS/MSD RPDs within laborar	· · · · · · · · · · · · · · · · · · ·	Х				
R8	OI	Analytical duplicate data	•					
		Were appropriate analytical duplicates	analyzed for each matrix?	Х				
		Were analytical duplicates analyzed at		Х				
		Were RPDs or relative standard deviati	ions within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):	Control of the declaration of the control of the co					
			included in the laboratory data package? ntration of the lowest non-zero calibration	X			\dashv	
		Are unadjusted MQLs and DCSs included		X	Х			3
R10	OI	Other problems/anomalies	ueu iii iile laboratory uata package?					3
	 "		cial conditions noted in this LRC and ER?	X		I	I	
			gy used to lower the SDL to minimize the	X				
		Is the laboratory NELAC-accredited und						
			d methods associated with this laboratory	X	1			
		Program for the analytes, matrices, and	1 ^		!	- 1		



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23	3/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC	3198	3		
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	31,	VK32	28	
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?						
		Were percent RSDs or correlation co		Х				
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	l x l				l
		calculate the curve?						
		Are ICAL data available for all instrum		Х				
			verified using an appropriate second source	l x l				
		standard?						
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	Х				<u> </u>
		Was the ICAL curve verified for each	,	Х				
	_		e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Х</th><th></th><th></th></mdl?<>			Х		
S3	0	Mass spectral tuning			_			
		Was the appropriate compound for the		X				
		Were ion abundance data within the	Х					
S4	0	Internal standards (IS)	V 1					
- 05		Were IS area counts and retention tin	Х					
S5	OI	Raw data (NELAC Section 5.5.10)						
		, , , , , , , , , , , , , , , , , , , ,	matograms, spectral data) reviewed by an	Х				
		analyst?	Were data associated with manual integrations flagged on the raw data?					<u> </u>
	0	Dual column confirmation						
S6	-	Did dual column confirmation Did dual column confirmation results meet the method-required QC?				Х		
S7	0	Tentatively identified compounds (TICs):				^		
31			s spectra and TIC data subject to appropriate					
		checks?	as spectra and the data subject to appropriate			Χ		
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within method				Х		
S9	ı	· · · · · · · · · · · · · · · · · · ·	kes, and method of standard additions					
	-		, and the linearity within the QC limits					
		specified in the method?	•			Х		l
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports						
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х				
		evaluation studies?		^				
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	l x l				l
		appropriate source?		_^_				
S13	OI	Compound/analyte identification procedures						
	L	Are the procedures for compound/analyte identification documented?		Х				
S14	OI	Demonstration of analyst competency (DOC)						
		Was DOC conducted consistent with NELAC Chapter 5?		X	_			<u> </u>
		Is documentation of the analyst's competency up-to-date and on file?		Х				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5) Are all the methods used to generate the data documentated, verified, and						
		· ·	tne data documentated, verified, and	X				
		validated, where applicable?						
S16	OI	Laboratory standard operating procedures (SOPs)						
		Are laboratory SOPs current and on f	rile for each method performed?	Х				1



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports								
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012								
Project Na	me:	First Quarterly Well Sampling, P.	Laboratory Project Number:	TC8198								
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS131, VK328								
ER# ¹	Description	on										
1	All anomal	All anomalies are discussed in the case narrative.										
2	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.											
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.											
4		ng purposes, the MQL is defined in th SDL is defined in the report as the M	e report as the RL. The unadjusted MQL/RL is DL.	reported in the method								

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary

Job Number: TC8198

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

mple K328-MB	File ID K07127.D	DF 1	Analyzed 05/17/12	By EM	Prep Date n/a	Prep Batch n/a	Analytical Batch VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	75-121%
2037-26-5	Toluene-D8	110%	87-119%
460-00-4	4-Bromofluorobenzene	104%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8198

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
VK328-BS	K07125.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.9	96	76-118
100-41-4	Ethylbenzene	25	25.1	100	75-112
108-88-3	Toluene	25	24.8	99	77-114
1330-20-7	Xylene (total)	75	74.7	100	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	101%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8198

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	K07129.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1MSD	K07130.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1	K07128.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No. Compour	TC820 nd ug/l	0-1 Spik Q ug/l		MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2 Benzene	1.0 U	25	25.2	101	24.1	96	4	76-118/16
100-41-4 Ethylbenz	zene 1.0 U	25	26.3	105	25.3	101	4	75-112/12
108-88-3 Toluene	1.0 U	25	26.5	106	25.3	101	5	77-114/12
1330-20-7 Xylene (t	otal) 3.0 U	75	78.7	105	76.1	101	3	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8200-1	Limits
1868-53-7	Dibromofluoromethane	115%	112%	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	106%	104%	75-121%
2037-26-5	Toluene-D8	111%	109%	108%	87-119%
460-00-4	4-Bromofluorobenzene	103%	103%	101%	80-133%



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8198

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-MB	File ID SS002579.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8198

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-BS	File ID SS002580.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	24.2	113	70-130
74-85-1	Ethene	57.4	64.7	113	70-130
74-84-0	Ethane	43.3	46.9	108	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.9	98	70-130
106-97-8	Butane	76.6	71.2	93	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8198

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	SS002587.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002585.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002586.D	5	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l (Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	491 ^b	21.5	661	787* a	60-140
74-85-1	Ethene	1.0 U	57.4	52.6	92	60-140
74-84-0	Ethane	20.4	43.3	71.6	118	60-140
74-98-6	Propane	1.5 U	60.6	58.2	96	60-140
75-28-5	Isobutane	1.5 U	72.5	66.0	91	60-140
106-97-8	Butane	1.5 U	76.6	64.8	85	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8198

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8201-1DUP	SS002592.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8201-1	SS002591.D	1	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8201-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	5.16	5.50	6	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	1.0 U	ND	nc	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8199

Sampling Date: 05/11/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Sample Summary

EarthCon Consultants

TC8199 Job No:

First Quarterly Well Sampling, Parker County, Texas Project No: First Quarterly Well Sampling, Parker County, Texas

Sample Number	Collected			Matrix	Client
	Date	Time By	Received	Code Type	Sample ID
TC8199-1	05/11/12	12:50	05/12/12	AQ Ground Water	WWW02-PER-051112





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8199

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 12:24:15 PM

1 Sample was collected on 05/11/2012 and received intact at Accutest on 05/12/2012 and properly preserved in 1 cooler at 4.7 Deg C. The sample received an Accutest job number of TC8199. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK328

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8200-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8201-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW02-PER-051112

 Lab Sample ID:
 TC8199-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
Run #1	K07132.D	1	05/17/12	EM	n/a	n/a	VK328
Run #2							

Run #1 5.0 ml Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00036 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	114% 106% 109% 105%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW02-PER-051112

 Lab Sample ID:
 TC8199-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002583.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2	SS002584.D	50	05/21/12	FI	n/a	n/a	GSS131

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	1.41 ^a	0.025	0.015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.025 U a	0.050	0.025	mg/l	
74-98-6	Propane	0.0027	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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CHAIN OF CUSTODY

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	T			www.a	ccutest.c		- California																TCE		
Client / Reporting Information	Project Name:		Project	Informa	tion												Req	ues	ted	Ana	lyse	s			Matrix Codes
Company Name	Project Name.														4										
EarthCon Consultants, Inc.		ly Well Sampli	ing, Parker C	ounty, 1	Texas										Jan									D	W - Drinking Water
Street Address	Street														Met										W - Ground Water WW - Water
4800 Sugar Grove Blvd., Suite 390 City State Zip	City		State	Billing I Compan	nformati v Name	on (i	diffe	rent f	from R	eport	to)				e,									s	W - Surface Water
	J,		0.0.0	l on pan	,										uta										SO - Soil SL- Sludge
Stafford TX 77477 Project Contact E-mail	Project #			Street A	ddress		-				_				gos										SED-Sediment OI - Oil
Gabriela Floreslovo															e,							1			LIQ - Other Liquid
Phone # Fax #	Client Purchase	Order#		City					State			Zip			he 25										AIR - Air SOL - Other Solid
281-201-3513															д -										WP - Wipe
Sampler(s) Name(s) Phone #	Project Manage	r		Attention										_	RS										FB-Field Blank
trathben Bixbn 28/240520	<u> </u>		ection	<u> </u>										8260B	돌호										
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Acculest Sample # Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	ρ	NaOH	HN03	H2SO4	Di Wate	MEOH	NaHSO4	ENCOR	ВТЕХ	Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175								-	١.	LAB USE ONLY
2 WWWD-PER-05/1/2	051119	1250	12B	W	10	V	ZN	I	I Z	+	2	- Z	шО	X	X	-			-					+	
1 2 WWW.D- F & E- 03/112	Willa	1230	1	-	U	r	+	+	\vdash	+	+	+	+	/(΄,				-					+	***************************************
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Turnaround Time (Business days)		Λ				$\perp \perp$	Data	Deliv	erable	Infor	rmatic	on I							Com	ments /	Special	Instruc	tions		
X Standard	Approved By (Acc	utest PM): / Date:		П	Commer	cial "	A" (Le	evel 1	1)	ŗ.	ΧŢτ	RRP													
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2 Day RUSH 1 Day EMERGENCY				ΙШ'	Commer			omin	! "A" =	Donut	tto On	ili.													
Emergency & Rush T/A data available VIA Lablink						4	Comm	ercia	1 "B" =	Resul	lts + C	QC Sur													
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Relurchshed by Shapler: Date Time:	7 500	Received By:	Qu	, , /		,/	1		nquish			4	,					ne:/ /-	12	Receive	d By:	E	l Ex	,	
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Relinquished by: Date Time:	11	Received By:	1-2-0	~ ~ =		- 0		Cus	tody Se	al#				Intact		Preserve	d when	applica	ble			On Ice	C	ooler Te	mp. /// I

TC8199: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

MACC	UTEST
	LABORATORIES

ccutest Job Number: TC819	99		Client: EARTHCC	ON COM	NSULTAN	TANTS Project: FIRST QUARTERLY WELL SAMPLING						
ate / Time Received: 5/12/2	012		Delivery N	/lethod		FedEx	Airbill #'s: 52	4976292500				
o. Coolers:	Therm	ID: IR	D: IRGUN5			Temp Adjustment Factor:			-0.5			
ooler Temps (Initial/Adjusted	d): <u>#1</u> :	(5.2/4.7	7).									
ooler Security Y	or N		*	Υ (or N	Sample Int	tegrity - Documenta	<u>tion</u>	<u>Y</u>	or	N	
. Custody Seals Present:			COC Present:	✓		1. Sample la	abels present on bottle	s:	✓			
Custody Seals Intact:		4. Sm	npl Dates/Time OK	✓		2. Container	r labeling complete:		✓			
ooler Temperature	Y	r N				3. Sample o	container label / COC a	gree:	✓			
. Temp criteria achieved:	✓					Sample In	tegrity - Condition		<u>Y</u>	or	N	
. Cooler temp verification:		red Gun				1. Sample r	ecvd within HT:		~			
. Cooler media:	lce	(Bag)				2. All contai	iners accounted for:		~			
ality Control Preservatio	Υ	or N	N/A	WTB	STB	3. Condition	n of sample:			Intac	xtt	
Trip Blank present / cooler:	~			V		Sample In	tegrity - Instruction	<u>s</u>	<u>Y</u>	or	N	N/A
. Trip Blank listed on COC:		✓				1. Analysis	requested is clear:		✓			
Samples preserved properly:	~					2. Bottles re	eceived for unspecified	tests			✓	
. VOCs headspace free:	~					3. Sufficien	nt volume recvd for ana	lysis:	✓			
						4. Compos	iting instructions clear:					✓
						5. Filtering	instructions clear:					~
omments Trip blank reported ir	n job TC	8203.										
ccutest Laboratories :713.271.4700						larwin Drive .271.4770						ouston, TX

TC8199: Chain of Custody Page 2 of 4









Problem Resolution

Accutest Job Number: TC8199

CSR: Elessa Sommers

Response Date: 5/15/2012

Response: Trip blank reported in job TC8203.

TC8199: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8199

Date / Time Received: 5/12/2012

Initials: ians

Client: EARTHCON CONSULTANTS

Cooler#	Cooler # Sample ID:		Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8199-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8199-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8199-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8199-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8199-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8199-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7

TC8199: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC8199 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

ė	R1	Field chain-of-custody documenta	ation;
	R2	Sample identification cross-refere	nce;
ū.	R3	Test reports (analytical data sheet	s) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for bl	ank samples;
	R6	Test reports/summary forms for la	boratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spik	re/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if	applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9		MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
		•	R)" item in Laboratory Review Checklist and for each analyte, matrix, and
method for	or which the	laboratory does not hold NELAC ac	creditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release of	this laboratory data package. This laboratory is NELAC accredited under the
Texas Lal	boratory Acc	creditation Program for all the metho	ods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report.	. This data package has been review	wed by the laboratory and is complete and technically compliant with the
requireme	ents of the m	nethods used, except where noted b	y the laboratory in the attached exception reports. By my signature below, I
affirm to t	he best of m	y knowledge, all problems/anomalie	es, observed by the laboratory as having the potential to affect the quality of
the data,	have been id	dentified by the laboratory in the Lat	poratory Review Checklist, and no information or data have been knowingly
withheld.			
Check, if	applicable	: This laboratory meets an exception	n under 30 TAC&25.6 and was last inspection by
[]		[X]TCEQ or [] on Apr	il 2011. Any findings affecting the data in this laboratory data package are
			erein. The official signing the cover page of the report in which these data are
			his data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

5/23/2012



	L	ABORATORY REVIEW (CHECKLIST: REPORTABLE	DAT	Ά			
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	3/20	12		
Project Na	me:	First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	_	8199			
Reviewer		Elessa Sommers	Prep Batch Number(s):			VK32		
# ¹	A ²	DESCRIPTION		YES	NO	NA ³	NR⁴	ER #5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		upon receipt?	andard conditions of sample acceptability	Х				
		Were all departures from standard or	onditions described in an exception report?	Х				
R2	OI	Sample and quality control (QC) ic						
		Are all field sample ID numbers cros	s-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-	referenced to the corresponding QC data?	X				
R3	OI	Test reports						
		Were samples prepared and analyze		X				
		Other than those results <mql, standards?<="" td="" were=""><td>e all other raw values bracketed by calibration</td><td>х</td><td></td><td></td><td></td><td></td></mql,>	e all other raw values bracketed by calibration	х				
		Were calculations checked by a pee	r or supervisor?	Х				
		Were all analyte identifications check		Х				
		Were sample detection limits reporte	ed for all analytes not detected?	Х				
			t samples reported on a dry weight basis?			Х		
		Were % moisture (or solids) reported				Χ		
		·	platile analysis extracted with methanol per			х		
		SW846 Method 5035?	. 10	_				
		If required for the project, are TIC's re	eported?			Χ		
R4	0	Surrogate recovery data	ti2	V				
		Were surrogates added prior to extra	n all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for b		 ^				
- 13	<u> </u>	Were appropriate type(s) of blanks a	•	Х				
		Were blanks analyzed at the approp		X				
			the entire analytical process, including					
		preparation and, if applicable, cleanu	, ,	X				
		Were blank concentrations <mql?< td=""><td>, p p 1000au 100 .</td><td>X</td><td></td><td></td><td></td><td></td></mql?<>	, p p 1000au 100 .	X				
R6	OI	Laboratory control samples (LCS)):					
		Were all COCs included in the LCS?	?	Х				
		Was each LCS taken through the en cleanup steps?	tire analytical procedure, including prep and	Х				
		Were LCSs analyzed at required free	quency?	X				
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	Х				
		Does the detectablility check sample detect the COCs at the MDL used to	data document the laboratory's capability to calculate the SDLs?	Х				2
		Was the LCSD RPD within QC limits				Х		
R7	OI	Matrix spike (MS) and matrix spike						
		Were the project/method specified a	nalytes included in the MS and MSD?	Х				
		Were MS/MSD analyzed at the appre		Х				
		Were MS (and MSD, if applicable) %	· · · · · · · · · · · · · · · · · · ·		Х			1
		Were the MS/MSD RPDs within labor	oratory QC limits?	X				
R8	OI	Analytical duplicate data						
		Were appropriate analytical duplicate		X				
		Were analytical duplicates analyzed		X				
			iations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs)						
			rte included in the laboratory data package?	X				
			centration of the lowest non-zero calibration cluded in the laboratory data package?	 ^	Х			3
R10	OI	Other problems/anomalies	nuueu iii iile laboratory data package?					3
17.10	<u> </u>		pecial conditions noted in this LRC and ER?	X				
			plogy used to lower the SDL to minimize the	^				
-			under the Texas Laboratory Accreditation	+^				
			and methods associated with this laboratory	х				
-		•		•				



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012					
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC	3199)			
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	31,	VK32	28		
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5	
S1	OI	Initial calibration (ICAL)							
		Were response factors and/or relative	e response factors for each analyte within QC	х					
		limits?							
		Were percent RSDs or correlation co		Х					
			mended in the method used for all analytes?	Х					
			ne lowest and highest standard used to	x				l	
		calculate the curve?							
		Are ICAL data available for all instrum		Х					
			verified using an appropriate second source	x					
		standard?							
S2	OI	Initial and continuing calibration ve							
		Was the CCV analyzed at the method	Х						
			alyte within the method-required QC limits?	Х				<u> </u>	
		Was the ICAL curve verified for each	Х						
	_		e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Х</th><th></th><th></th></mdl?<>			Х			
S3	0	Mass spectral tuning			_				
		Was the appropriate compound for the		Х					
		Were ion abundance data within the	method-required QC limits?	Х					
S4	0	Internal standards (IS)	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	V 1					
- 05			nes within the method-required QC limits?	Х					
S5	OI	Raw data (NELAC Section 5.5.10)							
		, , , , , , , , , , , , , , , , , , , ,	matograms, spectral data) reviewed by an	Х					
		analyst?	togrations flagged on the row date?	Х				<u> </u>	
	0	Were data associated with manual in Dual column confirmation	legrations hagged on the raw data?						
S6	-	Did dual column confirmation results	most the method required OC2			Х			
S7	0	Tentatively identified compounds (^			
31			s spectra and TIC data subject to appropriate						
		checks?	as spectra and the data subject to appropriate			Χ			
S8	ı	Interference Check Sample (ICS) r	esults						
		Were percent recoveries within metho				Х			
S9	ı		kes, and method of standard additions						
	-		, and the linearity within the QC limits						
		specified in the method?	•			Х		l	
S10	OI	Method detection limit (MDL) studi	es						
		Was a MDL study performed for each	reported analyte?	Х					
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2	
S11	OI	Proficiency test reports							
		Was the laboratory's performance ac-	ceptable on the applicable proficiency tests or	x					
		evaluation studies?		^					
S12	OI	Standards documentation							
		Are all standards used in the analyse	s NIST-traceable or obtained from other	x				l	
		appropriate source?		^					
S13	OI	Compound/analyte identification p							
	L	Are the procedures for compound/an	,	Х					
S14	OI	Demonstration of analyst compete		,, I					
		Was DOC conducted consistent with	·	X				<u> </u>	
	<u> </u>	Is documentation of the analyst's com		Х					
S15	OI		tion for methods (NELAC Chapter 5)						
		· ·	the data documentated, verified, and	Х					
040	<u> </u>	validated, where applicable?	and was (CODs)						
S16	OI	Laboratory standard operating pro		V					
	l	Are laboratory SOPs current and on f	ile for each method performed?	Χ				1	



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012
Project Na	me:	First Quarterly Well Sampling, P	Laboratory Project Number:	TC8199
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS131, VK328
ER# ¹	Description	on		
1	All anomal	ies are discussed in the case narrativ	e.	
2		atory does not perform DCS analysis e values in the Texas TRRP PCL tab	for Method RSKSOP-147/175. The compound les.	s reported are not listed or
3		ng purposes, the method blank represon the laboratory data package.	sents the unadjusted MQL. The DCS is on file	in the laboratory and is not
4		ng purposes, the MQL is defined in the SDL is defined in the report as the M	ne report as the RL. The unadjusted MQL/RL is IDL.	reported in the method

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8199

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK328-MB	K07127.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	75-121%
2037-26-5	Toluene-D8	110%	87-119%
460-00-4	4-Bromofluorobenzene	104%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8199

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
VK328-BS	K07125.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.9	96	76-118
100-41-4	Ethylbenzene	25	25.1	100	75-112
108-88-3	Toluene	25	24.8	99	77-114
1330-20-7	Xylene (total)	75	74.7	100	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	101%	80-133%

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8199

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	K07129.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1MSD	K07130.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1	K07128.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	25.2	101	24.1	96	4	76-118/16
100-41-4	Ethylbenzene	1.0 U	25	26.3	105	25.3	101	4	75-112/12
108-88-3	Toluene	1.0 U	25	26.5	106	25.3	101	5	77-114/12
1330-20-7	Xylene (total)	3.0 U	75	78.7	105	76.1	101	3	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8200-1	Limits
1868-53-7	Dibromofluoromethane	115%	112%	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	106%	104%	75-121%
2037-26-5	Toluene-D8	111%	109%	108%	87-119%
460-00-4	4-Bromofluorobenzene	103%	103%	101%	80-133%



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8199

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-MB	File ID SS002579.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8199

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-BS	File ID SS002580.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	24.2	113	70-130
74-85-1	Ethene	57.4	64.7	113	70-130
74-84-0	Ethane	43.3	46.9	108	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.9	98	70-130
106-97-8	Butane	76.6	71.2	93	70-130

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8199

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	SS002587.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002585.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002586.D	5	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	491 ^b	21.5	661	787* a	60-140
74-85-1	Ethene	1.0 U	57.4	52.6	92	60-140
74-84-0	Ethane	20.4	43.3	71.6	118	60-140
74-98-6	Propane	1.5 U	60.6	58.2	96	60-140
75-28-5	Isobutane	1.5 U	72.5	66.0	91	60-140
106-97-8	Butane	1.5 U	76.6	64.8	85	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8199

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8201-1DUP	SS002592.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8201-1	SS002591.D	1	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8201-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	5.16	5.50	6	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	1.0 U	ND	nc	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8200

Sampling Date: 05/11/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

TC8200 Job No:

First Quarterly Well Sampling, Parker County, Texas Project No: First Quarterly Well Sampling, Parker County, Texas

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
TC8200-1	05/11/12	15:20	05/12/12	AQ	Ground Water	WWW07-MER-051112
TC8200-1D	05/11/12	15:20	05/12/12	AQ	Water Dup/MSD	WWW07-MER-051112 MSD
TC8200-1S	05/11/12	15:20	05/12/12	AQ	Water Matrix Spike	WWW07-MER-051112 MS





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8200

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 1:37:01 PM

1 Sample was collected on 05/11/2012 and received intact at Accutest on 05/12/2012 and properly preserved in 1 cooler at 4.7 Deg C. The sample received an Accutest job number of TC8200. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK328

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8200-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8201-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results
Report of Analysis



Report of Analysis

Client Sample ID: WWW07-MER-051112

 Lab Sample ID:
 TC8200-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
Run #1	K07128.D	1	05/17/12	EM	n/a	n/a	VK328
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	113% 104% 108% 101%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW07-MER-051112

 Lab Sample ID:
 TC8200-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002585.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2	SS002586.D	5	05/21/12	FI	n/a	n/a	GSS131

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.491 a	0.0025	0.0015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0204	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



PAGE ___ OF ___

27	Δ	Carlo Carlo	C	U	T		T.

CHAIN OF CUSTODY

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Client / Reporting Information					accutest.c	om								-						<u> </u>		16	Dal		T
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Company Name															6							1			
EarthCon Consultants, Inc.	First Quarter	ly Well Sampli	ng, Parker C	ounty,	Texas										Ethene, Isobutane, Methane,										DW - Drinking Water
Street Address	Street				12.16									4	et		1								GW - Ground Water
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Stafford TX 77477									E E	1			1						SL- Sludge SED-Sediment						
Project Contact E-mail	Project #			Street A	ddress										s										Ol - Oil
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TC8200: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC8	3200	(Client: EARTHC	ON CO	NSULTAN	TS	Project:	FIRST QUART	ERLY WE	LL SAMPI	LING	
Date / Time Received: 5/12	2/2012		Delivery	Method	:	FedEx	Airbill #'s:	524976292500				
No. Coolers:	Then	m ID: IR	RGUN5				Temp Adjus	tment Factor:	-0.5			
Cooler Temps (Initial/Adjus	ted): #	1: (5.2/4.7	<u>7)</u>									
Cooler Security \(\)	or N	<u></u>		Υ (or N	Sample Inte	egrity - Docume	entation_	<u>Y</u>	or N		
Custody Seals Present:			COC Present:	✓		1. Sample la	bels present on b	ottles:	~			
2. Custody Seals Intact:	1	4. Sn	npl Dates/Time OK	✓		2. Container	labeling complete	i.	✓			
Cooler Temperature	<u>Y</u>	or N				3. Sample of	ontainer label / CC	OC agree:	✓			
1. Temp criteria achieved:	✓					Sample Int	tegrity - Conditi	on	<u>Y</u>	or N		
Cooler temp verification:		fared Gun				1. Sample re	ecvd within HT:		✓			
3. Cooler media:	lo	ce (Bag)				2. All contain	ners accounted for	.	✓			
Quality Control Preservation	<u> Y</u>	or N	N/A	WTB	STB	3. Condition	of sample:		Broke	en / Leaking	2	
1. Trip Blank present / cooler:	✓			✓		Sample Int	tegrity - Instruc	tions_	Υ	or N	N/A	
2. Trip Blank listed on COC:		✓				1. Analysis	requested is clear	:	~			
3. Samples preserved properly						2. Bottles re	eceived for unspec	ified tests		✓		
4. VOCs headspace free:	V					3. Sufficient	volume recvd for	analysis:	✓			
						4. Composi	ting instructions c	ear:			~	
						5. Filtering i	nstructions clear:				~	
Trip blank reported			PLE "WWW07-MEI	₹-05111								
Accutest Laboratories V:713.271.4700						arwin Drive 271.4770					Houston, TX 770 www/accutest.com	

TC8200: Chain of Custody

Page 1 of 3

Page 2 of 4







Problem Resolution

Accutest Job Number: TC8200

CSR: Elessa Sommers Response Date: 5/15/2012

Response: Sufficient sample volume remains for requested analysis. Trip blank reported in job TC8203.

_

TC8200: Chain of Custody Page 3 of 4





Page 3 of 3

Job #: TC8200

Date / Time Received: 5/12/2012

Initials: IANS

Client: EARTHCON CONSULTANTS

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8200-1	40mi	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	11	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	13	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	14	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	16	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	17	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8200-1	40ml	18	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7

TC8200: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC8200 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

į.	R1	Field chain-of-custody documentation;	3 4
₽	R2	Sample identification cross-reference;	
₽	R3	Test reports (analytical data sheets) fo	r each environmental sample that includes:
		a) I	tems consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b) c	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e) i	f required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	
		a) (Calculated recovery (%R), and
		b) -	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank	samples;
	R6	Test reports/summary forms for labora	tory control samples (LCSs) including:
		a) I	LCS spiking amounts,
		b) (Calculated %R for each analyte, and
		c) -	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/ma	atrix spike duplicates (MS/MSDs) including:
		a) 5	Samples associated with the MS/MSD clearly identified,
) (d	MS/MSD spiking amounts,
		c) (Concentration of each MS/MSD analyte measured in the parent and
		d) (Calculated %Rs and relative percent differences (RPDs), and
		e) -	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if appli	icable) recovery and precision:
		a) -	The amount of analyte measured in the duplicate,
		b) -	The calculated RPD, and
		c) -	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQL	.s) and detectability check sample results for each analyte for each
₽	R10	Other problems or anomalies.	
The Excep	otion Report	for each "No" or "Not Reviewed (NR)" it	tem in Laboratory Review Checklist and for each analyte, matrix, and
method fo	r which the l	laboratory does not hold NELAC accred	itation under the Texas Laboratory Accreditation Program.
Release S	Statement:	I am responsible for the release of this	laboratory data package. This laboratory is NELAC accredited under the
Texas Lab	oratory Acc	reditation Program for all the methods, a	analytes, and matrices reported in this data package except as noted in
the Excep	tion Report.	This data package has been reviewed by	by the laboratory and is complete and technically compliant with the
requireme	nts of the m	ethods used, except where noted by the	e laboratory in the attached exception reports. By my signature below, I
affirm to th	ne best of my	y knowledge, all problems/anomalies, ol	bserved by the laboratory as having the potential to affect the quality of
the data, h	nave been id	dentified by the laboratory in the Laborat	ory Review Checklist, and no information or data have been knowingly
withheld.			
Ohaala "	annliaah!	This laboratory mosts an eyessting	day 20 TAC 9.25 6 and was lost inspection by
	applicable:	This laboratory meets an exception un	der 30 TAC&25.6 and was last inspection by
[]			11. Any findings affecting the data in this laboratory data package are
		noted in the Exception Reports herein.	The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/23/2012

Official Title (printed)

Laboratory Director



	L	ABORATORY REVIEW C	HECKLIST: REPORTABLE	DAT	Α			
Laboratory	/ Name:	Accutest Gulf Coast	LRC Date:	5/2	3/20	12		
		First Overstank Well Seventing						
Project Na	mo:	First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	тс	8200			
Reviewer	Name:	-	Prep Batch Number(s):	+		VK32	8	
#1	I A ²	DESCRIPTION	Trop Bater Hamber(o).					ER#
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		Did samples meet the laboratory's star	X					
		upon receipt?						
			nditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) ide						
		-	referenced to the laboratory ID numbers?	X				
		*	ferenced to the corresponding QC data?	X				
R3	OI	Test reports				-		
		Were samples prepared and analyzed		X				
			all other raw values bracketed by calibration	X				
		standards? Were calculations checked by a peer of	or supervisor?	X				
		Were all analyte identifications checke	·	X				
		Were sample detection limits reported		 ^				
			samples reported on a dry weight basis?	+^		Х		
		Were % moisture (or solids) reported f				X		
		· ·	atile analysis extracted with methanol per			Х		
		SW846 Method 5035?		<u> </u>				
		If required for the project, are TIC's rep	ported?			Х		
R4	0	Surrogate recovery data	#a=0	V			_	
		Were surrogates added prior to extract	all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for bla	· · · · · · · · · · · · · · · · · · ·	<u> </u>				
	 0 1	Were appropriate type(s) of blanks and		Х			П	
		Were blanks analyzed at the appropria		X				
		Were method blanks taken through the						
		preparation and, if applicable, cleanup	procedures?	X				
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х				
R6	OI	Laboratory control samples (LCS):						
		Were all COCs included in the LCS?		X				
		•	re analytical procedure, including prep and	X				
		cleanup steps? Were LCSs analyzed at required frequ	Ienov?	X				
		Were LCS (and LCSD, if applicable) 9	•	 ^				
			data document the laboratory's capability to					
		detect the COCs at the MDL used to c		X				2
		Was the LCSD RPD within QC limits?				Х		
R7	OI	Matrix spike (MS) and matrix spike	duplicate (MSD) data					
		Were the project/method specified ana		Х				
		Were MS/MSD analyzed at the approp		X				
		Were MS (and MSD, if applicable) %F		L.,	Х			1
	 	Were the MS/MSD RPDs within labora	atory QC limits?	X				
R8	OI	Analytical duplicate data	analyzed for each matrice				-	
		Were appropriate analytical duplicates Were analytical duplicates analyzed a		X				
		Were RPDs or relative standard devia		X			-	
R9	OI	Method quantitation limits (MQLs):	action main the laboratory to minto:	\perp				
	† <u> </u>		e included in the laboratory data package?	Х			-	
			ntration of the lowest non-zero calibration	X				
		Are unadjusted MQLs and DCSs inclu	ided in the laboratory data package?		Χ			3
R10	OI	Other problems/anomalies						
			ecial conditions noted in this LRC and ER?	Х				
			ogy used to lower the SDL to minimize the	X				
			nder the Texas Laboratory Accreditation	1				
		Program for the analytes, matrices, an	X					
		data package?						



Laboratory Name:		Accutest Gulf Coast LRC Date:	5/2	3/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa Laboratory Project Number:	TC	8200)		
Reviewer	Name:	Elessa Sommers Prep Batch Number(s):	GSS ²	131,	VK32	28	
# ¹	A ²	DESCRIPTION	YES	NO	NA ³	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC					
		limits?	Х				
		Were percent RSDs or correlation coefficient criteria met?	Х				
		Was the number of standards recommended in the method used for all analytes?	Х				
		Were all points generated between the lowest and highest standard used to					
		calculate the curve?	Х				
		Are ICAL data available for all instruments used?	Х				
		Has the initial calibration curve been verified using an appropriate second source	Х				
		standard?	^				
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method-required frequency?	Χ				
		Were percent differences for each analyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each analyte?	Х				
		Was the absolute value of the analyte concentration in the inorganic CCB <mdl?< td=""><td></td><td></td><td>Х</td><td></td><td></td></mdl?<>			Х		
S3	0	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	Х				
		Were ion abundance data within the method-required QC limits?	Х				
S4	0	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)					
•		Were the raw data (for example, chromatograms, spectral data) reviewed by an					
		analyst?	Х				
		Were data associated with manual integrations flagged on the raw data?	Х				
S6	0	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			Х		
S7	0	Tentatively identified compounds (TICs):					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate			Х		
		checks?			^		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			Х		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits			Х		
		specified in the method?			^		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	Х				
		Is the MDL either adjusted or supported by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or	X				
		evaluation studies?	^				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other	X				
		appropriate source?	_^_				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	Х				<u> </u>
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	Х				
	ļ	Is documentation of the analyst's competency up-to-date and on file?	Χ				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documentated, verified, and	Х				
		validated, where applicable?					
S16	OI	Laboratory standard operating procedures (SOPs)	, , , , , , , , , , , , , , , , , , ,				
		Are laboratory SOPs current and on file for each method performed?	Х				Щ_



	LABOR	RATORY REVIEW CHE	CKLIST (continued): Exception	on Reports							
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012							
Project Na	me:	First Quarterly Well Sampling,	Pa Laboratory Project Number:	TC8200							
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS131, VK328							
ER# ¹	Description	on .									
1	All anomal	ies are discussed in the case narrat	ive.								
2	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.										
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.										
4		ng purposes, the MQL is defined in SDL is defined in the report as the	the report as the RL. The unadjusted MQL/RL is MDL.	s reported in the method							

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

<u></u>

Method Blank Summary

Job Number: TC8200

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
VK328-MB	K07127.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	75-121%
2037-26-5	Toluene-D8	110%	87-119%
460-00-4	4-Bromofluorobenzene	104%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8200

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK328-BS	K07125.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.9	96	76-118
100-41-4	Ethylbenzene	25	25.1	100	75-112
108-88-3	Toluene	25	24.8	99	77-114
1330-20-7	Xylene (total)	75	74.7	100	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	101%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8200

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	K07129.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1MSD	K07130.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1	K07128.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	25.2	101	24.1	96	4	76-118/16
100-41-4	Ethylbenzene	1.0 U	25	26.3	105	25.3	101	4	75-112/12
108-88-3	Toluene	1.0 U	25	26.5	106	25.3	101	5	77-114/12
1330-20-7	Xylene (total)	3.0 U	75	78.7	105	76.1	101	3	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8200-1	Limits
1868-53-7	Dibromofluoromethane	115%	112%	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	106%	104%	75-121%
2037-26-5	Toluene-D8	111%	109%	108%	87-119%
460-00-4	4-Bromofluorobenzene	103%	103%	101%	80-133%



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8200

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-MB	File ID SS002579.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8200

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS131-BS	File ID SS002580.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	24.2	113	70-130
74-85-1	Ethene	57.4	64.7	113	70-130
74-84-0	Ethane	43.3	46.9	108	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.9	98	70-130
106-97-8	Butane	76.6	71.2	93	70-130

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8200

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	SS002587.D	1	05/21/12	FΙ	n/a	n/a	GSS131
TC8200-1	SS002585.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002586.D	5	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l (Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	491 ^b	21.5	661	787* a	60-140
74-85-1	Ethene	1.0 U	57.4	52.6	92	60-140
74-84-0	Ethane	20.4	43.3	71.6	118	60-140
74-98-6	Propane	1.5 U	60.6	58.2	96	60-140
75-28-5	Isobutane	1.5 U	72.5	66.0	91	60-140
106-97-8	Butane	1.5 U	76.6	64.8	85	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8200

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8201-1DUP	SS002592.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8201-1	SS002591.D	1	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8201-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	5.16	5.50	6	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	1.0 U	ND	nc	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8201

Sampling Date: 05/11/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420

Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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6.2: Blank Spike Summary	
6.3: Matrix Spike Summary	
6.4: Duplicate Summary	





Sample Summary

EarthCon Consultants

Job No: TC8201

First Quarterly Well Sampling, Parker County, Texas Project No: First Quarterly Well Sampling, Parker County, Texas

Sample	Collected	l		Matrix	Client
Number	Date	Time By	Received	Code Type	Sample ID
TC8201-1	05/11/12	11:25	05/12/12	AQ Ground Water	WWW23-HUS-051112





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8201

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 1:49:46 PM

1 Sample was collected on 05/11/2012 and received intact at Accutest on 05/12/2012 and properly preserved in 1 cooler at 4.7 Deg C. The sample received an Accutest job number of TC8201. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK328

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8200-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8201-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW23-HUS-051112

 Lab Sample ID:
 TC8201-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K07133.D	1	05/17/12	EM	n/a	n/a	VK328
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3	Benzene Toluene	0.00025 U 0.00026 U	0.0010 0.0010	0.00025 0.00026	mg/l mg/l	
100-41-4 1330-20-7	Ethylbenzene Xylene (total)	0.00025 U 0.00071 U	0.0010 0.0030	0.00025 0.00071	mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7	Dibromofluoromethane	112%		79-122%		
1868-53-7 17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	112% 106% 109%		79-122% 75-121% 87-119%		

U = Not detected SDL - Sample Detection Limit MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW23-HUS-051112

 Lab Sample ID:
 TC8201-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002591.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2							

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.00516	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00050 U	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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CHAIN OF CUSTODY

			CHAI	N O	F (CU	ST	O'	DΥ	7											PΑ	GE		OI	F
EACCUTEST			1016517-		. 150 11		mv s	2026						FED-E	X Tracking	g #				Bottle Order Control #					
Laboratories			10165 Hai TEL. 71	3-271-470		: 713-								Accute	st Quote #	¥				Accutes	t Job#		Tra	20	1
Client / Reporting Information			Project			John								_			Rea	11.6.5	t e d	Ana	lvse	•	100	00	Matrix Codes
Company Name	Project Name:																		Ī			Ì			Matrix Codos
EarthCon Consultants, Inc.	First Quarter	ly Well Samplin	g, Parker C	ounty, 1	exas										Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175										DIM Deleties Messes
Street Address	Street													1	t e										DW - Drinking Water GW - Ground Water
4800 Sugar Grove Blvd., Suite 390	1				nformati	ion (if	differ	ent fr	om Re	eport	to)			1	e S										WW - Water SW - Surface Water
City State Zip	City		State	Compan	y Name									1	la la										SO - Soil
Stafford TX 77477 Project Contact E-mail				Street Ad	denne									1	g										SL- Sludge SED-Sediment
	Project #			SUBBL AL	Juless										l š										OI - Oil LIQ - Other Liquid
Gabriela Floreslovo Phone # Fax #	Client Purchase	Order#		City					State			Zip		1	eu .c	١.									AIR - Air
1	Olicit i dichiase	Order #		,											# 5	l									SOL - Other Solid WP - Wipe
281-201-3513 Sampler(s) Name(s) Phone #	Project Manager			Attention	:									1	S, S										FB-Field Blank
Kathleen Buxton 281-240-520	5													9	y Rar			l							
THE TENT DESIGNED SO		Collec	tion			T		Numb	er of pr	eserve	ed Bott	les		326	E G				l						
						П	Ę	П	4	ter	ŢΓ	8	8 8	BTEX 8260B	ane										
Acculest Sample # 55217 field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	2	ZANE	HNO	NONE	DI WE	MEO	NaHSO	OTHER	BTB	But Pro										LAB USE ONLY
4 WWW23-HUS-051112	05/112	1125	KB	W	6	X		П		Ш				X	10										
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Turnaround Time (Business days)							Data [Delive	rable	Infor	matic	n Dn							Com	ments /	Specia	l Instru	ctions		
X Standard	Approved By (Accu	itest PM); / Date;			Commer						ХΊт					Γ				11011101	ороско		20010		
5 Day RUSH					Commer					_	_		ormat												
4 Day RUSH					FULT1 (Leve!	3+4)					Other _		-											
3 Day RUSH					REDT1 (Level	3+4)																		
2 Day RUSH					Commer																				
1 Day EMERGENCY	***************************************			-					"A" = F			-				ļ									
Emergency & Rush T/A data available VIA Lablink												C Sun		te Sumi	man										
160	Sar	mple Custody mu	ıst be docum	ented be	low eac											delive	ry.								
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3	1101/	3	Pre	- /		Α.		4												4					

TC8201: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

1. Sample 2. Contain 3. Sample 1 1. Sample 2. All cont	Airbill #'s: 524976292 Temp Adjustment Fact Integrity - Documentation I labels present on bottles: I container label / COC agree: Integrity - Condition I recvd within HT: I ainers accounted for:		or N	
1. Sample 2. Contain 3. Sample 1 1. Sample 2. All cont	ntegrity - Documentation labels present on bottles: er labeling complete: container label / COC agree: Integrity - Condition recvd within HT:	Y V V	or N	
1. Sample 2. Contain 3. Sample 1 1. Sample 2. All cont	labels present on bottles: er labeling complete: container label / COC agree: integrity - Condition recvd within HT:	✓ ✓ ✓ Y	or N	
1. Sample 2. Contain 3. Sample 1 1. Sample 2. All cont	labels present on bottles: er labeling complete: container label / COC agree: integrity - Condition recvd within HT:	✓ ✓ ✓ Y	or N	
2. Contain 3. Sample I Sample 2. All cont	er labeling complete: container label / COC agree: ntegrity - Condition recvd within HT:	✓✓Y	or N	
3. Sample I 1. Sample 2. All cont	container label / COC agree: ntegrity - Condition recvd within HT:	Y	or N	
Sample I 1. Sample 2. All cont	ntegrity - Condition	<u>Y</u>	or N	
1. Sample 2. All cont	recvd within HT:	-		
2. All cont		~		
	ainers accounted for			
3. Condition	amoro accounted for.	•		
	on of sample:		Intact	
Sample I	ntegrity - Instructions	<u>Y</u>	or N	N/A
1. Analys	is requested is clear:	~		
2. Bottles	received for unspecified tests		✓	
3. Sufficie	ent volume recvd for analysis:	~		
4. Compo	siting instructions clear:			✓
5. Filterin	g instructions clear:			✓
	2. Bottles 3. Sufficie 4. Compo	1. Analysis requested is clear: 2. Bottles received for unspecified tests 3. Sufficient volume recvd for analysis: 4. Compositing instructions clear: 5. Filtering instructions clear:	2. Bottles received for unspecified tests 3. Sufficient volume recvd for analysis: 4. Compositing instructions clear: □	2. Bottles received for unspecified tests 3. Sufficient volume recvd for analysis: 4. Compositing instructions clear:

TC8201: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8201

CSR: Elessa Sommers

Response: Trip blank reported in job TC8203.

Response Date: 5/15/2012

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TC8201: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8201

01 Date / Time Receive

Date / Time Received: 5/12/2012

Initials: ians

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8201-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8201-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8201-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8201-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
-1	TC8201-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8201-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	5.2	-0.5	4.7

TC8201: Chain of Custody

Page 4 of 4



Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review checklist, and the following reportable data:

TC8201 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

Ų.	IX I	rield chain-or-custody documentation	on,
	R2	Sample identification cross-reference	ce;
	R3	Test reports (analytical data sheets)	for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
□	R4	Surrogate recovery data including:	
•		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
□	R5	Test reports/summary forms for blar	
Ġ	R6		pratory control samples (LCSs) including:
•		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
ū.	R7	,	/matrix spike duplicates (MS/MSDs) including:
•		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
₽	R8	Laboratory analytical duplicate (if ap	· ·
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
□	R9	,	QLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	QED) and detectability effects campio results for each analyte for each
	1110	Carlot probleme of anomalice.	
)" item in Laboratory Review Checklist and for each analyte, matrix, and editation under the Texas Laboratory Accreditation Program.
Texas Lal the Excep requirement affirm to the	ooratory Acc otion Report. ents of the m he best of m	reditation Program for all the method: This data package has been reviewe ethods used, except where noted by y knowledge, all problems/anomalies	is laboratory data package. This laboratory is NELAC accredited under the s, analytes, and matrices reported in this data package except as noted in the by the laboratory and is complete and technically compliant with the the laboratory in the attached exception reports. By my signature below, I, observed by the laboratory as having the potential to affect the quality of rratory Review Checklist, and no information or data have been knowingly
	applicable:	This laboratory meets an exception	under 30 TAC&25.6 and was last inspection by
[]			2011. Any findings affecting the data in this laboratory data package are bin. The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/23/2012

Official Title (printed)

Laboratory Director



	L	ABORATORY REVIEW C	CHECKLIST: REPORTABLE	<u>D</u> AT	Ά			
Laboratory	y Name:	Accutest Gulf Coast	LRC Date:	5/2	3/20	12		
		First Overtants Well Committee						
Project Na	amo:	First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	т.	8201	ı		
Reviewer		Elessa Sommers	Prep Batch Number(s):	+		VK32	8	
#1	I A ²	DESCRIPTION	Trop Edicit Hambor(o).					ER#
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		Did samples meet the laboratory's sta	andard conditions of sample acceptability	X				
		upon receipt?						
			onditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) id						
		-	s-referenced to the laboratory ID numbers?	X				
		*	eferenced to the corresponding QC data?	X				
R3	OI	Test reports	T. St. Lat. Programs					
		Were samples prepared and analyze		X				
		standards?	all other raw values bracketed by calibration	X				
		Were calculations checked by a peer	or supervisor?	X			_	
		Were all analyte identifications check	·	X				
		Were sample detection limits reported		X				
			t samples reported on a dry weight basis?			Х		
	Were % moisture (or solids) reported for all soil and sediment samples? Were bulk soils/solids samples for volatile analysis extracted with methanol per					Х		
						Х		
		SW846 Method 5035?		-				
D4	_	If required for the project, are TIC's re	eported?			Χ		
R4	0	Surrogate recovery data Were surrogates added prior to extra	ction?	X				
			all samples within the laboratory QC limits?	 ^				
R5	OI	Test reports/summary forms for bl						
		Were appropriate type(s) of blanks a		Х	П		П	
		Were blanks analyzed at the appropr		Х				
		Were method blanks taken through the	he entire analytical process, including	Х				
		preparation and, if applicable, cleanu						
		Were blank concentrations <mql?< td=""><td>X</td><td></td><td></td><td></td><td></td></mql?<>	X					
R6	OI	Laboratory control samples (LCS):						
		Were all COCs included in the LCS?	tire analytical procedure, including prep and	X				
		cleanup steps?	life analytical procedure, including prep and	X				
		Were LCSs analyzed at required free	quency?	X				
			%Rs within the laboratory QC limits?	X				
			data document the laboratory's capability to	\				
		detect the COCs at the MDL used to	calculate the SDLs?	X				2
		Was the LCSD RPD within QC limits				Х		
R7	OI	Matrix spike (MS) and matrix spike						
			nalytes included in the MS and MSD?	X			\dashv	
		Were MS/MSD analyzed at the approver Were MS (and MSD, if applicable) %		X	Х		\dashv	1
		Were the MS/MSD RPDs within labo	· · · · · · · · · · · · · · · · · · ·	X	 ^		\dashv	<u> </u>
R8	OI	Analytical duplicate data	, 40	L				
	† <u> </u>	Were appropriate analytical duplicate	es analyzed for each matrix?	Х				
		Were analytical duplicates analyzed		X				
			ations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):	:					
			te included in the laboratory data package?	Х				
			entration of the lowest non-zero calibration	X				
B / 2	<u> </u>	,	luded in the laboratory data package?		Х			3
R10	OI	Other problems/anomalies	poolel conditions noted in this LBC and EBC	V				
			pecial conditions noted in this LRC and ER? logy used to lower the SDL to minimize the	X			-+	
			ander the Texas Laboratory Accreditation	+^			-+	
			nd methods associated with this laboratory	X				
	1	1		ı ^	1	1		



Laboratory	/ Name:	Accutest Gulf Coast LRC Date:	5/2	3/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa Laboratory Project Number:	TC	820°	ı		
Reviewer	Name:	Elessa Sommers Prep Batch Number(s):	GSS ²	131,	VK32	28	
# ¹	A ²	DESCRIPTION	YES	NO	NA ³	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC					
		limits?	Х				İ
		Were percent RSDs or correlation coefficient criteria met?	Х				
		Was the number of standards recommended in the method used for all analytes?	Х				
		Were all points generated between the lowest and highest standard used to					
		calculate the curve?	Х				İ
		Are ICAL data available for all instruments used?	Х				
		Has the initial calibration curve been verified using an appropriate second source	Х				
		standard?	^				İ
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method-required frequency?	Х				
		Were percent differences for each analyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each analyte?	Х				
		Was the absolute value of the analyte concentration in the inorganic CCB <mdl?< td=""><td></td><td></td><td>Χ</td><td></td><td></td></mdl?<>			Χ		
S3	0	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	Х				
		Were ion abundance data within the method-required QC limits?	Х				
S4	0	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an	х				
		analyst?					
		Were data associated with manual integrations flagged on the raw data?	Х				<u> </u>
S6	0	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			Х		<u> </u>
S7	0	Tentatively identified compounds (TICs):					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate			Х		İ
	.	checks?					
S8	I	Interference Check Sample (ICS) results			l v		
		Were percent recoveries within method QC limits?			Х		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			Х		İ
S10	OI	Method detection limit (MDL) studies					_
310	0	Was a MDL study performed for each reported analyte?	Х				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				2
S11	OI	Proficiency test reports					
311	- 01	Was the laboratory's performance acceptable on the applicable proficiency tests or	_				
		evaluation studies?	Х				İ
S12	OI	Standards documentation					
0.2		Are all standards used in the analyses NIST-traceable or obtained from other				ı	
		appropriate source?	Х				İ
S13	OI	Compound/analyte identification procedures					
- 0.0		Are the procedures for compound/analyte identification documented?	Х				
S14	OI	Demonstration of analyst competency (DOC)					
7.7		Was DOC conducted consistent with NELAC Chapter 5?	Х				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
 		Are all the methods used to generate the data documentated, verified, and				ı	
		validated, where applicable?	Х				i
S16	OI	Laboratory standard operating procedures (SOPs)					
	<u> </u>	Are laboratory SOPs current and on file for each method performed?	Х				



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012
Project Na	me:	First Quarterly Well Sampling, P	Laboratory Project Number:	TC8201
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS131, VK328
ER# ¹	Description	on		
1	All anomal	ies are discussed in the case narrativ	e.	
2		atory does not perform DCS analysis e values in the Texas TRRP PCL tabl	for Method RSKSOP-147/175. The compoundles.	ls reported are not listed or
3		ng purposes, the method blank represon the laboratory data package.	sents the unadjusted MQL. The DCS is on file	in the laboratory and is not
4		ng purposes, the MQL is defined in the SDL is defined in the report as the M	e report as the RL. The unadjusted MQL/RL is DL.	reported in the method

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary

Job Number: TC8201

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
VK328-MB	K07127.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	75-121%
2037-26-5	Toluene-D8	110%	87-119%
460-00-4	4-Bromofluorobenzene	104%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8201

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
VK328-BS	K07125.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.9	96	76-118
100-41-4	Ethylbenzene	25	25.1	100	75-112
108-88-3	Toluene	25	24.8	99	77-114
1330-20-7	Xylene (total)	75	74.7	100	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	101%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8201

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	K07129.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1MSD	K07130.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1	K07128.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	25.2	101	24.1	96	4	76-118/16
100-41-4	Ethylbenzene	1.0 U	25	26.3	105	25.3	101	4	75-112/12
108-88-3	Toluene	1.0 U	25	26.5	106	25.3	101	5	77-114/12
1330-20-7	Xylene (total)	3.0 U	75	78.7	105	76.1	101	3	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8200-1	Limits
1868-53-7	Dibromofluoromethane	115%	112%	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	106%	104%	75-121%
2037-26-5	Toluene-D8	111%	109%	108%	87-119%
460-00-4	4-Bromofluorobenzene	103%	103%	101%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8201

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-MB	File ID SS002579.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8201

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS131-BS	File ID SS002580.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	24.2	113	70-130
74-85-1	Ethene	57.4	64.7	113	70-130
74-84-0	Ethane	43.3	46.9	108	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.9	98	70-130
106-97-8	Butane	76.6	71.2	93	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8201

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	SS002587.D	1	05/21/12	FΪ	n/a	n/a	GSS131
TC8200-1	SS002585.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002586.D	5	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC820 ug/l	00-1 Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	491 b		21.5	661	787* a	60-140
74-85-1	Ethene	1.0 U		57.4	52.6	92	60-140
74-84-0	Ethane	20.4		43.3	71.6	118	60-140
74-98-6	Propane	1.5 U		60.6	58.2	96	60-140
75-28-5	Isobutane	1.5 U		72.5	66.0	91	60-140
106-97-8	Butane	1.5 U		76.6	64.8	85	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8201

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8201-1DUP	SS002592.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8201-1	SS002591.D	1	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8201-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	5.16	5.50	6	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	1.0 U	ND	nc	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8202

Sampling Date: 05/11/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420

Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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6.4: Duplicate Summary	





Sample Summary

EarthCon Consultants

Job No: TC8202

First Quarterly Well Sampling, Parker County, Texas Project No: First Quarterly Well Sampling, Parker County, Texas

Sample	Collected Matrix		rix	Client		
Number	Date	Time By	Received	Code Type		Sample ID
TC8202-1	05/11/12	09:45	05/12/12	AQ	Ground Water	WWW11-AND-051112





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8202

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 2:20:53 PM

1 Sample was collected on 05/11/2012 and received intact at Accutest on 05/12/2012 and properly preserved in 1 cooler at 4.7 Deg C. The sample received an Accutest job number of TC8202. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK328

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8200-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8201-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW11-AND-051112

Lab Sample ID: TC8202-1 **Date Sampled:** 05/11/12 Matrix: **Date Received:** 05/12/12 AQ - Ground Water Method: SW846 8260B Percent Solids: n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
Run #1	K07134.D	1	05/17/12	EM	n/a	n/a	VK328
Run #2							

Purge Volume Run #1 5.0 ml Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
CAS No. 1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	Run# 1 112% 106% 108% 101%	Run# 2	Timits 79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: WWW11-AND-051112

 Lab Sample ID:
 TC8202-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/12/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002593.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2							

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.00189	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00050 U	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

U = Not detected

SDL - Sample Detection Limit

 $MQL = \ Method \ Quantitation \ Limit$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



Account (MINES)		
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Client / Reporting Information		4.00	Project	Informa	tion											Req	uest	ed A	nal	yse	s			Matrix Codes
Company Name	Project Name:												1	1										
EarthCon Consultants, Inc.	First Quarter	irst Quarterly Well Sampling, Parker County, Texas										Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175						-			D	W - Drinking Wate		
Street Address	Street													eth										W - Ground Wate
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Stafford TX 77477				Street Ac									4	ngo					- 1					SED-Sediment
Project Contact E-mail	Project #			Street Ad	ioress									s,					- 1	- 1			١,	OI - Oil LIQ - Other Liquid
Gabriela Floreslovo	Client Purchase			City				Sta	ite		Z	in	-	ene .				- 1	1	- 1			- 1	AIR - Air
Thorton	Client Purchase	Order#		City				Ole			_	,,,		# 5					1				1	SOL - Other Solid WP - Wipe
281-201-3513 Samiller(s) Name(s) Phone #	Project Manager	-		Attention	,								┨	S, S					1					FB-Field Blank
Sampler(s) Name(s) Phone # Katheen Buxton 281240	-CNs)			Attention									m	y Rar				1	1				- 1	
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Accutest Sample# 155 W Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	0	ZANAOH	NO3	NON	MEOH	TSP	ENCOR	BTEX 8260B	Pro Bet					1				١	LAB USE ONLY
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TC8202: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC8202	Client: EARTHCON CONSULT	ANTS Project: FIRST QUART	ERLY WELL SAMPLING
Date / Time Received: 5/12/2012	Delivery Method:	FedEx Airbill #'s: 524976292500	
No. Coolers: 1 Theri	m ID: IRGUN5	Temp Adjustment Factor:	-0.5
Cooler Temps (Initial/Adjusted): #	1: (5.2/4.7)		
Cooler Security Y or N		Sample Integrity - Documentation	Y or N
1. Odstody Oddis i roscht.	3. COC Present:	Sample labels present on bottles:	
2. Custody Seals Intact:	4. Smpl Dates/Time OK	Container labeling complete:	
Cooler Temperature Y	or N	3. Sample container label / COC agree:	✓
1. Temp criteria achieved:		Sample Integrity - Condition	Y or N
Cooler temp verification: Inf	fared Gun	Sample recvd within HT:	
3. Cooler media:	ce (Bag)	2. All containers accounted for:	
Quality Control Preservatio Y	or N N/A WTB STB	3. Condition of sample:	Intact
1. Trip Blank present / cooler:		Sample Integrity - Instructions	Y or N N/A
2. Trip Blank listed on COC:		Analysis requested is clear:	
3. Samples preserved properly:		2. Bottles received for unspecified tests	
4. VOCs headspace free:		3. Sufficient volume recvd for analysis:	v
		4. Compositing instructions clear:	
		5. Filtering instructions clear:	
Comments Trip blank reported in job Tr	C8203.		
Accutest Laboratories V:713.271.4700		65 Harwin Drive 713.271.4770	Houston, TX 77036 www/accutest.com

TC8202: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8202

CSR: Elessa Sommers

Response Date: 5/15/2012

Response: Trip blank reported in job TC8203.

4

TC8202: Chain of Custody Page 3 of 4





Page 3 of 3

Job #: TC8202

Date / Time Received: 5/12/2012

Initials: ians

Client: EARTHCON CONSULTANTS

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	1 TC8202-1 40ml 1 VR HCL		Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7			
1	TC8202-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8202-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8202-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8202-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8202-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at	IRGUN5	5.2	-0.5	4.7

TC8202: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8202 This data package consists of

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

₽	R2	Sample identification cross-re	ference;
₽	R3	Test reports (analytical data s	heets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data inclu	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms f	or blank samples;
	R6	Test reports/summary forms f	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
₽	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
₽	R9	List of method quantitation lim	its (MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
The Exce	ption Repor	t for each "No" or "Not Reviewe	d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the	laboratory does not hold NELA	C accreditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the releas	e of this laboratory data package. This laboratory is NELAC accredited under the
			ethods, analytes, and matrices reported in this data package except as noted in
			eviewed by the laboratory and is complete and technically compliant with the
			ed by the laboratory in the attached exception reports. By my signature below, I
affirm to t	he best of m	y knowledge, all problems/anor	nalies, observed by the laboratory as having the potential to affect the quality of
			Laboratory Review Checklist, and no information or data have been knowingly
withheld.		,	
Check, if	applicable	: This laboratory meets an exce	eption under 30 TAC&25.6 and was last inspection by
[]		[X] TCEQ or [] on	April 2011. Any findings affecting the data in this laboratory data package are
			s herein. The official signing the cover page of the report in which these data are
			ing this data package and is by signature affirming the above release statement
			5 , 5

Official Title (printed)

Laboratory Director

5/23/2012



	L	ABORATORY REVIEW CHE	CKLIST: REPORTABLE	DAT	Ά						
Laboratory			C Date:		3/20	12					
Project Na	me:	First Quarterly Well Sampling, Parker County, Texas Lab	poratory Project Number:	TC8202							
Reviewer	Name:	Elessa Sommers Pre	p Batch Number(s):	GSS	131,	VK32	:8				
#1	A ²	DESCRIPTION	, , ,	YES	NO	NA ³	NR⁴	ER#5			
R1	OI	CHAIN-OF-CUSTODY (C-O-C):									
		Did samples meet the laboratory's standa upon receipt?	ard conditions of sample acceptability	Х							
		Were all departures from standard conditi	X								
R2	OI	Sample and quality control (QC) identif	fication								
		Are all field sample ID numbers cross-refe	erenced to the laboratory ID numbers?	Х							
		Are all laboratory ID numbers cross-refere	enced to the corresponding QC data?	Х							
R3	OI	Test reports									
		Were samples prepared and analyzed with	thin holding times?	Х			П				
		Other than those results <mql, all="" o="" standards?<="" td="" were=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql,>		Х							
		Were calculations checked by a peer or s	supervisor?	Х							
		Were all analyte identifications checked b		Х							
		Were sample detection limits reported for		Х			İ				
		Were all results for soil and sediment san			П	Х					
		Were % moisture (or solids) reported for a	all soil and sediment samples?			Χ					
		Were bulk soils/solids samples for volatile	e analysis extracted with methanol per			Х					
		SW846 Method 5035?				^					
		If required for the project, are TIC's report	ed?			Χ					
R4	0	Surrogate recovery data									
		Were surrogates added prior to extraction		X							
		Were surrogate percent recoveries in all s	·	X	Ш						
R5	OI	Test reports/summary forms for blank	<u> </u>								
		Were appropriate type(s) of blanks analyz		X							
		Were blanks analyzed at the appropriate		X							
		Were method blanks taken through the er		l x							
		preparation and, if applicable, cleanup pro	ocedures?								
		Were blank concentrations <mql?< td=""><td></td><td>X</td><td>Ш</td><td></td><td></td><td></td></mql?<>		X	Ш						
R6	OI	Laboratory control samples (LCS):					-				
		Were all COCs included in the LCS?	and Continuous Law York Programmed	X							
		Was each LCS taken through the entire a cleanup steps?		Х							
		Were LCSs analyzed at required frequen		X							
		Were LCS (and LCSD, if applicable) %Rs		X							
		Does the detectablility check sample data		l x				2			
		detect the COCs at the MDL used to calcu	ulate the SDLs?	_							
		Was the LCSD RPD within QC limits?	alianta (MCD) data		Щ	Χ					
R7	OI	Matrix spike (MS) and matrix spike dup					-				
		Were the project/method specified analyte		X	$\vdash\vdash$						
		Were MS/MSD analyzed at the appropria		X	V						
		Were MS (and MSD, if applicable) %Rs v	· · · · · · · · · · · · · · · · · · ·	X	Х			1			
R8		Were the MS/MSD RPDs within laborator	y QC illillis?								
R8	OI	Analytical duplicate data	1 16	V		-	-				
		Were appropriate analytical duplicates an Were analytical duplicates analyzed at the		X	H						
		Were RPDs or relative standard deviation		+							
R9	OI		is within the laboratory QC limits?	X	ш						
	UI UI	Method quantitation limits (MQLs): Are the MQLs for each method analyte inc	cluded in the laboratory data nackage?	X			1				
		Do the MQLs correspond to the concentra		^	\vdash						
		Are unadjusted MQLs and DCSs included		+^	Х			3			
R10	OI	Other problems/anomalies	a iii iilo laboratory data package!		\Box						
1110	<u> </u>	Are all known problems/anomalies/specia	al conditions noted in this LRC and ER2	Х			1				
		Was applicable and available technology		<u></u>	H		-				
		Is the laboratory NELAC-accredited under		+~							
		Program for the analytes, matrices, and m data package?		X							



Laboratory	Name:	Accutest Gulf Coast LRC Date:		5/2	3/20	12			
Project Name:		First Quarterly Well Sampling, Pa Laboratory Project Number:				5/23/2012 TC8202			
Reviewer		Elessa Sommers Prep Batch Number(s):	GSS131, VK328						
#1	A ²	DESCRIPTION	VEC	NO	NIA3	ND ⁴	ER#		
 S1	OI	Initial calibration (ICAL)		TES	NO	INA	INIX	ER#	
31	0	Were response factors and/or relative response factors for each analyte with	thin OC						
		limits?	IIIII QC	X					
		Were percent RSDs or correlation coefficient criteria met?		X					
		Was the number of standards recommended in the method used for all and	alvtoc2	X					
		Were all points generated between the lowest and highest standard used to			-				
		calculate the curve?	•	X					
		Are ICAL data available for all instruments used?	X						
	Has the initial calibration curve been verified using an appropriate second source								
		standard?	oouroc	X					
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and co	ntinuing						
		Was the CCV analyzed at the method-required frequency?		Х					
		Were percent differences for each analyte within the method-required QC	Х						
		Was the ICAL curve verified for each analyte?	Х						
		Was the absolute value of the analyte concentration in the inorganic CCB<		T	Х				
S3	0	Mass spectral tuning							
		Was the appropriate compound for the method used for tuning?		Х					
		Were ion abundance data within the method-required QC limits?		Х					
S4	S4 O Internal standards (IS)								
		Were IS area counts and retention times within the method-required QC limits?							
S5	OI	Raw data (NELAC Section 5.5.10)							
		Were the raw data (for example, chromatograms, spectral data) reviewed by	y an	x					
		analyst?							
		Were data associated with manual integrations flagged on the raw data?		Х					
S6	0	Dual column confirmation							
		Did dual column confirmation results meet the method-required QC?				Х			
S7	0	Tentatively identified compounds (TICs):							
		If TICs were requested, were the mass spectra and TIC data subject to app			Χ				
S8	<u> </u>	checks? Interference Check Sample (ICS) results							
	-	Were percent recoveries within method QC limits?			_	Х			
S9		Serial dilutions, post digestion spikes, and method of standard additi	one			^			
	<u> </u>	Were percent differences, recoveries, and the linearity within the QC limits		_					
		specified in the method?				Χ			
S10	OI	Method detection limit (MDL) studies							
	 	Was a MDL study performed for each reported analyte?		Х					
		Is the MDL either adjusted or supported by the analysis of DCSs?		$\frac{x}{x}$	\dashv			2	
S11	OI	Proficiency test reports							
		Was the laboratory's performance acceptable on the applicable proficiency	tests or	,, I					
		evaluation studies?		X					
S12	OI	Standards documentation							
		Are all standards used in the analyses NIST-traceable or obtained from oth	er	V					
		appropriate source?		X					
S13	OI	Compound/analyte identification procedures							
		Are the procedures for compound/analyte identification documented?		Х					
S14	OI	Demonstration of analyst competency (DOC)							
	Was DOC conducted consistent with NELAC Chapter 5?			Х					
		Is documentation of the analyst's competency up-to-date and on file?		Х					
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5							
Are all the methods used to generate the data documentated, verified, and				x					
		validated, where applicable?							
S16	OI	Laboratory standard operating procedures (SOPs)							
		Are laboratory SOPs current and on file for each method performed?		Х					



LABORATORY REVIEW CHECKLIST (continued): Exception Reports									
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012					
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC8202					
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS131, VK328					
ER# ¹	Description	n							
1	All anomal	es are discussed in the case narrative).						
2	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.								
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.								
4		ng purposes, the MQL is defined in the SDL is defined in the report as the MI	e report as the RL. The unadjusted MQL/RL is DL.	reported in the method					

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary

Job Number: TC8202

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK328-MB	K07127.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	75-121%
2037-26-5	Toluene-D8	110%	87-119%
460-00-4	4-Bromofluorobenzene	104%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8202

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK328-BS	K07125.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.9	96	76-118
100-41-4	Ethylbenzene	25	25.1	100	75-112
108-88-3	Toluene	25	24.8	99	77-114
1330-20-7	Xvlene (total)	75	74.7	100	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	101%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8202

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	K07129.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1MSD	K07130.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1	K07128.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	25.2	101	24.1	96	4	76-118/16
100-41-4	Ethylbenzene	1.0 U	25	26.3	105	25.3	101	4	75-112/12
108-88-3	Toluene	1.0 U	25	26.5	106	25.3	101	5	77-114/12
1330-20-7	Xylene (total)	3.0 U	75	78.7	105	76.1	101	3	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8200-1	Limits
1868-53-7	Dibromofluoromethane	115%	112%	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	106%	104%	75-121%
2037-26-5	Toluene-D8	111%	109%	108%	87-119%
460-00-4	4-Bromofluorobenzene	103%	103%	101%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8202

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-MB	File ID SS002579.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8202

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-BS	File ID SS002580.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	24.2	113	70-130
74-85-1	Ethene	57.4	64.7	113	70-130
74-84-0	Ethane	43.3	46.9	108	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.9	98	70-130
106-97-8	Butane	76.6	71.2	93	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8202

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	SS002587.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002585.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002586.D	5	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l (Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	491 ^b	21.5	661	787* a	60-140
74-85-1	Ethene	1.0 U	57.4	52.6	92	60-140
74-84-0	Ethane	20.4	43.3	71.6	118	60-140
74-98-6	Propane	1.5 U	60.6	58.2	96	60-140
75-28-5	Isobutane	1.5 U	72.5	66.0	91	60-140
106-97-8	Butane	1.5 U	76.6	64.8	85	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8202

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8201-1DUP	SS002592.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8201-1	SS002591.D	1	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8201-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	5.16	5.50	6	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	1.0 U	ND	nc	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/18/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8203

Sampling Date: 05/11/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 19



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

TC8203 Job No:

First Quarterly Well Sampling, Parker County, Texas Project No: First Quarterly Well Sampling, Parker County, Texas

Sample Collected			Matri	ix	Client	
Number	Date	Time By	Received	Code	Type	Sample ID
TC8203-1	05/11/12	09:45	05/12/12	AQ	Trip Blank Water	TRIPBLANK-051112





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8203

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/18/2012 3:01:19 PM

1 Trip Blank was received intact at Accutest on 05/12/2012 and properly preserved in 1 cooler at 4.7 Deg C. The sample received an Accutest job number of TC8203. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VK328

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8200-1MSD were used as the QC samples indicated.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

Friday, May 18, 2012 Page 1 of 1





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: TRIPBLANK-051112

 Lab Sample ID:
 TC8203-1
 Date Sampled:
 05/11/12

 Matrix:
 AQ - Trip Blank Water
 Date Received:
 05/12/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch
Run #1	K07135.D	1	05/17/12	EM	n/a	n/a	VK328
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	114% 107% 110% 104%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



PAGE ___ OF ___

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Sec. 28					

CHAIN OF CUSTODY

Labaratories		10165 Harwin Dr. Ste 150 Houston, TX 77036									FED-E	FED-EX Tracking #				Bottle Order Control #									
rapera, orres		TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com					Accute	est Quote	Ħ				Accutest Job # TC8203					,							
Client / Reporting Information		Project Information						Requested										Matrix Codes							
Company Name	Project Name:															T	T		T	T	T	T			
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						\Box	\top	1	\vdash	T	T	+	tt	†	1	1	-	 	 	+		 	\vdash	-	
Turnaround Time (Business days)		L				L	Data	Dalis	/erable	a Info	rmati	ion		1					Con		(5000	ial Instru	L		
X Standard	Approved By (Accu	utest PMi: / Date:			Commerc						X)			2222		T			Con	ments /	Spec	al IIIsuu	Juons		
5 Day RUSH				-	Commerc								Forma	t		l									
4 Day RUSH					FULT1 (Leve	13+4)			Ħ	Othe	r												
3 Day RUSH					REDT1 (Leve	1 3+4)																	
2 Day RUSH					Commerc	cial "	C"																		
1 Day EMERGENCY				1					ii "A" =			-				-									
Emergency & Rush T/A data available VIA Lablink													ummary Surroga		man/										
8	Sar	mple Custody n	nust be docum	ented be	low eac											deliv	ery.								
Pedinguisher Date Time:	12 500	Received By:	St		^			Reli 2	nquish	ed By	71	1					Date Ii	me://-	12 7:an	Receive 2	ed By:	P	9d	EN	,
Relinquished by Sampler: Date Tirpe:	4/2/030	Received By:	2 lel	J	1			Reli	nquish	ed By	:	1					Date Ti			Receive 4	d By:	, .			
Relinquished by: Date Time:	•	Received By:		*				Cus	tody S	al#				Intact		Preser	ved wher	e applica	ible			On Ice		Cooler 1	Тепр.

TC8203: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number:	TC8203	Client: EARTHO	CON CONSULT	ANTS	Project: FIRST QUART	ERLY WELL	SAMPLI	NG
Date / Time Received:	5/12/2012	Delivery	Method:	FedEx	Airbill #'s: 524976292500			
No. Coolers:	Therm ID:	IRGUN5			Temp Adjustment Factor:	-0.5		
Cooler Temps (Initial/Ac	ljusted): #1: (5.2	2/4.7)						
			V an N	I Camula Into	grity - Documentation	Υo	r N	
Cooler Security	Y or N	3, COC Present:	Y or N			<u>, , , , , , , , , , , , , , , , , , , </u>		
Custody Seals Present:		Smpl Dates/Time O		1 '	pels present on bottles:			
2. Custody Seals Intact:	✓ 4	. Simpi Dates/Time O		1	abeling complete:	✓		
Cooler Temperature	Y or N	<u>1</u>		3. Sample co	ntainer label / COC agree:	✓		
Temp criteria achieved:	V			Sample Inte	egrity - Condition	<u> Y o</u>	r N	
2. Cooler temp verification:	Infared C	Gun		1. Sample re	evd within HT:	✓		
3. Cooler media:	Ice (Ba	g)		1	ers accounted for:	✓		
Quality Control Preserv	atio Y or	N N/A	WTB STB	3. Condition	of sample:	Int	act	
1. Trip Blank present / coo				Sample Inte	egrity - Instructions	<u>Y 0</u>	r N	N/A
2. Trip Blank listed on COC	c: 🗹 🛚			1. Analysis r	equested is clear:	~		
3. Samples preserved prop	erly:			2. Bottles re	ceived for unspecified tests		✓	
4. VOCs headspace free:	V	_		3. Sufficient	volume recvd for analysis:	~		
,		-		4. Composit	ing instructions clear:			✓
				5. Filtering in	nstructions clear:			✓
Comments Triphlank 05	1112 Date: 05/11/1	12 Time: 09:45 listed	on chain-of-custo	dv: 3 vials for Trip F	Blank have Date: 05/04/12, Time: 1	6:30, 2 vials.		
Confinents Tripbiank - 00	1112, Date. 00/11/	12, 11116: 00:40 113104	on onder or odoro	ay, o tiale let tilp -	,	·		
Accutest Laboratories V:713.271.4700				65 Harwin Drive 713.271.4770				louston, TX 7703 ww/accutest.com

TC8203: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8203

5/15/2012 Response Date: CSR: Elessa Sommers

Response: Chain-of-custody lists the date of the sampling event for the samples associated with the trip blank. The date on the labels on the trip blank is its preparation date.



TC8203: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8203

Date / Time Received: 5/12/2012

Initials: IANS

Client: EARTHCON CONSULTANTS

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8203-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	5.2	-0.5	4.7
1	TC8203-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	5.2	-0.5	4.7

TC8203: Chain of Custody Page 4 of 4

Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8203 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

	R2	Sample identification cross-reference	e;
	R3	Test reports (analytical data sheets)	for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
į.	R4	Surrogate recovery data including:	
•		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
į.	R5	Test reports/summary forms for blar	ık samples;
	R6	Test reports/summary forms for labor	oratory control samples (LCSs) including:
•		a) ,	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
į.	R7	•	matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
D.	R8	Laboratory analytical duplicate (if ap	plicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
į.	R9	List of method quantitation limits (M	QLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	, , , , , , , , , , , , , , , , , , , ,
The Exce	ption Report	t for each "No" or "Not Reviewed (NR)	" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	r which the	laboratory does not hold NELAC accr	editation under the Texas Laboratory Accreditation Program.
		•	, ,
Release S	Statement:	Lam responsible for the release of th	is laboratory data package. This laboratory is NELAC accredited under the
		•	s, analytes, and matrices reported in this data package except as noted in
			d by the laboratory and is complete and technically compliant with the
			the laboratory in the attached exception reports. By my signature below, I
			observed by the laboratory as having the potential to affect the quality of
			ratory Review Checklist, and no information or data have been knowingly
withheld.	iavo boom io	definited by the laboratory in the Labo	rationy review emediate, and no information of data have been knowingly
with inicia.			
Check, if	applicable	: This laboratory meets an exception	under 30 TAC&25.6 and was last inspection by
Check, if	applicable	,	· · · ·
	applicable	[X]TCEQ or [] on April 2	under 30 TAC&25.6 and was last inspection by 2011. Any findings affecting the data in this laboratory data package are in. The official signing the cover page of the report in which these data are

Official Title (printed)

Laboratory Director

5/18/2012



Laboratory		ABORATORY REVIEW CHE Accutest Gulf Coast	C Date:		8/20	12					
Laboratory	rivanie.	Accutest Guil Godst LRC	o Date.	3/1	J120	14					
		First Quarterly Well Sampling,									
Project Na	me:		ooratory Project Number:	TC	8203	3					
Reviewer	Name:	Elessa Sommers Pre	p Batch Number(s):	VK328							
# ¹	A ²	DESCRIPTION		YES	NR⁴ E	ER#					
R1	OI	CHAIN-OF-CUSTODY (C-O-C):									
		Did samples meet the laboratory's standa	l x								
		upon receipt?									
	L	Were all departures from standard conditi		X				_			
R2	OI	Sample and quality control (QC) identif									
		Are all field sample ID numbers cross-refe	· · · · · · · · · · · · · · · · · · ·	Х							
		Are all laboratory ID numbers cross-refere	enced to the corresponding QC data?	Х							
R3	OI	Test reports									
		Were samples prepared and analyzed wit		X							
		Other than those results <mql, all="" of<="" td="" were=""><td>other raw values bracketed by calibration</td><td>l x</td><td></td><td></td><td></td><td></td></mql,>	other raw values bracketed by calibration	l x							
		standards?									
		Were calculations checked by a peer or s	•	X			$-\!\!\!+$				
		Were all analyte identifications checked b		X							
		Were sample detection limits reported for	X								
		Were all results for soil and sediment sam	-		X						
		Were % moisture (or solids) reported for a Were bulk soils/solids samples for volatile	-		Х	-+					
		SW846 Method 5035?	1		Х						
		If required for the project, are TIC's reporte	1		Х						
R4	0	Surrogate recovery data			^						
	├	Were surrogates added prior to extraction	12	Х			Т				
		Were surrogate percent recoveries in all s		X							
R5	OI	Test reports/summary forms for blank		, , ,							
	1	Were appropriate type(s) of blanks analyz		Х	l		Т	_			
		Were blanks analyzed at the appropriate		Х							
		Were method blanks taken through the er		\ \ \				_			
		preparation and, if applicable, cleanup pro	ocedures?	X							
		Were blank concentrations <mql?< td=""><td>Х</td><td></td><td></td><td></td><td></td></mql?<>	Х								
R6	OI	Laboratory control samples (LCS):									
		Were all COCs included in the LCS?		Х							
		Was each LCS taken through the entire a	analytical procedure, including prep and	X							
		cleanup steps?									
		Were LCSs analyzed at required frequency	•	X							
		Were LCS (and LCSD, if applicable) %Rs		X							
		Does the detectablility check sample data		l x							
		detect the COCs at the MDL used to calcu	ulate the SDLs?								
		Was the LCSD RPD within QC limits?				Х					
R7	OI	Matrix spike (MS) and matrix spike dup									
		Were the project/method specified analyte		X							
		Were MS/MSD analyzed at the appropriate Were MS (and MSD, if applicable) %Rs w		X							
		Were the MS/MSD RPDs within laborator	·	X							
R8	OI	Analytical duplicate data	y QC mino:	1							
Κŏ	UI	Were appropriate analytical duplicates an	palyzed for each matrix?			γI	-				
		Were analytical duplicates an Were analytical duplicates and were analytical duplicates analyzed at the		+		X	-+				
		Were RPDs or relative standard deviation		-			-+				
R9	OI	Method quantitation limits (MQLs):	is within the laboratory QC IIIIIIts!			Х					
113	0	Are the MQLs for each method analyte inc	cluded in the laboratory data package?	Х			T				
		Do the MQLs correspond to the concentra		T X			-+				
		Are unadjusted MQLs and DCSs included		+^	Х		-+	1			
R10	OI	Other problems/anomalies	= ideo.dio. j data puonago.					÷			
	 	Are all known problems/anomalies/specia	al conditions noted in this LRC and FR?	Х			T				
		Was applicable and available technology		T X			-	_			
-		Is the laboratory NELAC-accredited under		† ^`			-	_			
		Program for the analytes, matrices, and m		X							
	1	data package?		1 ^			- 1				



Laboratory	Momo:	Accutest Gulf Coast LRC Date:	5/4	8/20	112		
			_				
Project Na		First Quarterly Well Sampling, Pa Laboratory Project Number:		820	3		
	Name:	Elessa Sommers Prep Batch Number(s):	VK32	_	13	14	U==5
#1	A ²	DESCRIPTION	YES	NO	NA	NR"	ER#
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC	l x l				
		limits?					
		Were percent RSDs or correlation coefficient criteria met?	Х				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to	Х				
		calculate the curve?	^				
		Are ICAL data available for all instruments used?	Х				
		Has the initial calibration curve been verified using an appropriate second source					
		standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method-required frequency?	Х			П	Ι
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				†
		Was the absolute value of the analyte concentration in the inorganic CCB <mdl?< td=""><td>+^-</td><td></td><td>Х</td><td><u> </u></td><td>l</td></mdl?<>	+^-		Х	<u> </u>	l
S3	0	Mass spectral tuning			_^		
	 	Was the appropriate compound for the method used for tuning?	Х		1	1	
		Were ion abundance data within the method-required QC limits?	X			-	
	_	'					_
S4	0	Internal standards (IS)	- V		ı	_	
		Were IS area counts and retention times within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)				_	_
		Were the raw data (for example, chromatograms, spectral data) reviewed by an					
		analyst?	L			_	
		Were data associated with manual integrations flagged on the raw data?	Х				
S6	0	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			Х		
S 7	0	Tentatively identified compounds (TICs):			X		
S 7	0	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate					
		Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S7 S8	0	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results			Х		
S8	I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits?					
		Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions			Х		
S8	I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits			X		
S8 S9	I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			Х		
S8	I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies			X		
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S8 S9	I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies Was a MDL study performed for each reported analyte?			X		
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\$8 \$9 \$10	I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies Was a MDL study performed for each reported analyte? Is the MDL either adjusted or supported by the analysis of DCSs? Proficiency test reports			X		
\$8 \$9 \$10	I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies Was a MDL study performed for each reported analyte? Is the MDL either adjusted or supported by the analysis of DCSs? Proficiency test reports Was the laboratory's performance acceptable on the applicable proficiency tests or	Х		X		
\$8 \$9 \$10	I I OI	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies Was a MDL study performed for each reported analyte? Is the MDL either adjusted or supported by the analysis of DCSs? Proficiency test reports Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X		X		
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\$8 \$9 \$10	I I OI	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies Was a MDL study performed for each reported analyte? Is the MDL either adjusted or supported by the analysis of DCSs? Proficiency test reports Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? Standards documentation Are all standards used in the analyses NIST-traceable or obtained from other	X		X		
\$8 \$9 \$10 \$11	I I I I I I I I I I I I I I I I I I I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies Was a MDL study performed for each reported analyte? Is the MDL either adjusted or supported by the analysis of DCSs? Proficiency test reports Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? Standards documentation Are all standards used in the analyses NIST-traceable or obtained from other appropriate source?	X		X		
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\$8 \$9 \$10 \$11 \$12	I I I I I I I I I I I I I I I I I I I	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies Was a MDL study performed for each reported analyte? Is the MDL either adjusted or supported by the analysis of DCSs? Proficiency test reports Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? Standards documentation Are all standards used in the analyses NIST-traceable or obtained from other appropriate source? Compound/analyte identification procedures Are the procedures for compound/analyte identification documented? Demonstration of analyst competency (DOC) Was DOC conducted consistent with NELAC Chapter 5? Is documentation of the analyst's competency up-to-date and on file? Verification/validation documentation for methods (NELAC Chapter 5)	X X X		X		
\$8 \$9 \$10 \$11 \$12 \$13 \$14	01 OI OI OI	Tentatively identified compounds (TICs): If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? Interference Check Sample (ICS) results Were percent recoveries within method QC limits? Serial dilutions, post digestion spikes, and method of standard additions Were percent differences, recoveries, and the linearity within the QC limits specified in the method? Method detection limit (MDL) studies Was a MDL study performed for each reported analyte? Is the MDL either adjusted or supported by the analysis of DCSs? Proficiency test reports Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? Standards documentation Are all standards used in the analyses NIST-traceable or obtained from other appropriate source? Compound/analyte identification procedures Are the procedures for compound/analyte identification documented? Demonstration of analyst competency (DOC) Was DOC conducted consistent with NELAC Chapter 5? Is documentation of the analyst's competency up-to-date and on file? Verification/validation documentation for methods (NELAC Chapter 5) Are all the methods used to generate the data documentated, verified, and	X X X		X		
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	LABOR	RATORY REVIEW	CHECKLIST (continued): Ex	ception Reports
Laboratory Name: Accutest Gulf Coast		Accutest Gulf Coast	LRC Date:	5/18/2012
Project Na	me:	First Quarterly Well Sam	pling, Pa Laboratory Project Number:	TC8203
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	VK328
ER# ¹	Description	on		•
1		ng purposes, the method blar n the laboratory data package	nk represents the unadjusted MQL. The DCS	S is on file in the laboratory and is not
2		ing purposes, the MQL is defined in the re	ned in the report as the RL. The unadjusted I eport as the MDL.	MQL/RL is reported in the method

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8203

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK328-MB	K07127.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

TC8203-1

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	75-121%
2037-26-5	Toluene-D8	110%	87-119%
460-00-4	4-Bromofluorobenzene	104%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8203

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK328-BS	K07125.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

TC8203-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.9	96	76-118
100-41-4	Ethylbenzene	25	25.1	100	75-112
108-88-3	Toluene	25	24.8	99	77-114
1330-20-7	Xylene (total)	75	74.7	100	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	101%	80-133%



Page 1 of 1

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary Job Number: TC8203

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	K07129.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1MSD	K07130.D	1	05/17/12	EM	n/a	n/a	VK328
TC8200-1	K07128.D	1	05/17/12	EM	n/a	n/a	VK328

The QC reported here applies to the following samples:

TC8203-1

CAS No.	Compound	TC8200-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	25.2	101	24.1	96	4	76-118/16
100-41-4	Ethylbenzene	1.0 U	25	26.3	105	25.3	101	4	75-112/12
108-88-3	Toluene	1.0 U	25	26.5	106	25.3	101	5	77-114/12
1330-20-7	Xylene (total)	3.0 U	75	78.7	105	76.1	101	3	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8200-1	Limits
1868-53-7	Dibromofluoromethane	115%	112%	113%	79-122%
17060-07-0	1,2-Dichloroethane-D4	107%	106%	104%	75-121%
2037-26-5	Toluene-D8	111%	109%	108%	87-119%
460-00-4	4-Bromofluorobenzene	103%	103%	101%	80-133%



05/21/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8536

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 18



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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-1-

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Sample Summary

EarthCon Consultants

Job No:

TC8536

First Quarterly Well Sampling, Parker County, Texas

Sample Number	Collected Date	l Time By	Received	Matr Code		Client Sample ID
TC8536-1	05/12/12	09:10	05/15/12	AQ	Trip Blank Water	TRIPBLANK-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8536

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/21/2012 10:36:58 AM

1 Trip Blank was received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8536. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

4 of 18
ACCUTEST



Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: TRIPBLANK-051212

 Lab Sample ID:
 TC8536-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Trip Blank Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017786.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	92% 96% 94% 101%		79-122% 75-121% 87-119% 80-133%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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CHAIN OF CUSTODY

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Gabriela Floreslovo															e,										LIQ - Other Liquid
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281-201-3513 Sampler(x) Name(s), P	hone # Project Manager			Attention:										-	S, E										WP - Wipe FB-Field Blank
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TC8536: Chain of Custody Page 1 of 3





Accutest Laboratories Sample Receipt Summary

Page 1 of 2

Date / Time Received: 5/15/20	Deliv	very Method:	Airbill #'s: 800040672089			
No. Coolers: 1	Therm ID: IRGUN5;		Temp Adjustment Factor:	-0.5;		
Cooler Temps (Initial/Adjusted)): <u>#1: (3,3/2.8);</u>					
Cooler Security Y	or N	Y or N	Sample Integrity - Documentation	_Y	or N	
1. Custody Seals Present:	3. COC Present		Sample labels present on bottles:	~		
2. Custody Seals Intact:	4. Smpl Dates/Time		Container labeling complete:	V	n	
Cooler Temperature	Y or N		Sample container label / COC agree:	~		
Temp criteria achieved:	V		Sample Integrity - Condition	<u>Y</u>	or N	
Cooler temp verification:			Sample recvd within HT:	~		
3. Cooler media:	Ice (Bag)		2. All containers accounted for:	V		
Quality Control_Preservation	Y or N N/A	WTB STB	3. Condition of sample:		Intact	
Trip Blank present / cooler:		V	Sample Integrity - Instructions	<u>Y</u>	or N	N/A
2. Trip Blank listed on COC:			Analysis requested is clear:	v		
3. Samples preserved properly:			2. Bottles received for unspecified tests	 -	<u> </u>	
4. VOCs headspace free:			Sufficient volume recvd for analysis:	~		
•			4. Compositing instructions clear:			✓
			5. Filtering instructions clear:			✓
Comments						
			H 1882 - A			

TC8536: Chain of Custody Page 2 of 3







Sample Receipt Log

Job #: TC8536

Date / Time Received: 5/15/2012 9:45:00 AM

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot#	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8536-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8536-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by	IRGUN5	3.3	-0.5	2.8

4

TC8536: Chain of Custody Page 3 of 3



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC8536 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

į.	R1	Field chain-of-custody documentation);
	R2	Sample identification cross-reference	•
	R3	Test reports (analytical data sheets) for	or each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank	samples;
Ū.	R6	Test reports/summary forms for labora	atory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/m	natrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if app	licable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQ	Ls) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
		, ,	item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	r which the I	aboratory does not hold NELAC accred	ditation under the Texas Laboratory Accreditation Program.
Release \$	Statement:	I am responsible for the release of this	laboratory data package. This laboratory is NELAC accredited under the
Texas Lab	oratory Acci	reditation Program for all the methods,	analytes, and matrices reported in this data package except as noted in
the Excep	tion Report.	This data package has been reviewed	by the laboratory and is complete and technically compliant with the
			ne laboratory in the attached exception reports. By my signature below, I
			observed by the laboratory as having the potential to affect the quality of
the data, h	nave been id	entified by the laboratory in the Labora	atory Review Checklist, and no information or data have been knowingly
withheld.			
Check if	annlicable:	This laboratory meets an exception up	nder 30 TAC&25.6 and was last inspection by
[]	applicable.	•	
			011. Any findings affecting the data in this laboratory data package are n. The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/21/2012

Official Title (printed)

Laboratory Director



	L	ABORATORY REVIEW (CHECKLIST: REPORTABLE	DAT	Ά			
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	1/20	12		
Project Na		First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	_	8536	6		
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	VE8	_			
# ¹	A ²	DESCRIPTION		YES	NO	NA³	NR⁴	ER #5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		upon receipt?	andard conditions of sample acceptability	Х				
		Were all departures from standard co	onditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) ic	dentification					
		Are all field sample ID numbers cros	s-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-	referenced to the corresponding QC data?	X				
R3	OI	Test reports						
		Were samples prepared and analyze		X				
		Other than those results <mql, standards?<="" td="" were=""><td>e all other raw values bracketed by calibration</td><td>х</td><td></td><td></td><td></td><td></td></mql,>	e all other raw values bracketed by calibration	х				
		Were calculations checked by a pee	r or supervisor?	Х				
		Were all analyte identifications check		Х				
		Were sample detection limits reporte		X				
			t samples reported on a dry weight basis?			Х		
		Were % moisture (or solids) reported				Χ		
			olatile analysis extracted with methanol per			Х		
		SW846 Method 5035? If required for the project, are TIC's re	onortod?			Х		
R4	0	Surrogate recovery data	eported:					
- 14		Were surrogates added prior to extra	action?	X	П			
			n all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for b	· · · · · · · · · · · · · · · · · · ·	<u> </u>				
	<u> </u>	Were appropriate type(s) of blanks a		Х				
		Were blanks analyzed at the approp		Х				
		Were method blanks taken through t	the entire analytical process, including	X				
		preparation and, if applicable, cleanu	up procedures?	X				
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х				
R6	OI	Laboratory control samples (LCS)						
		Were all COCs included in the LCS?		X				
		Was each LCS taken through the en cleanup steps?	tire analytical procedure, including prep and	х				
		Were LCSs analyzed at required free		Х				
			%Rs within the laboratory QC limits?	Х				
			e data document the laboratory's capability to	l x				
		detect the COCs at the MDL used to						
		Was the LCSD RPD within QC limits				Х		
R7	OI	Matrix spike (MS) and matrix spike		_				
		Were the project/method specified at Were MS/MSD analyzed at the appropriate the specified at the specified	nalytes included in the MS and MSD?	X				
		Were MS (and MSD, if applicable) %		X				
		Were the MS/MSD RPDs within labor		₩ X				
R8	OI	Analytical duplicate data	oratory sto minto:	\perp				
1.0	<u> </u>	Were appropriate analytical duplicate	es analyzed for each matrix?			Х		
		Were analytical duplicates analyzed		 		X		
			iations within the laboratory QC limits?	t		X		
R9	OI	Method quantitation limits (MQLs)						
		. , ,	rte included in the laboratory data package?	Х				
		Do the MQLs correspond to the cond	centration of the lowest non-zero calibration	Х				
		Are unadjusted MQLs and DCSs inc	cluded in the laboratory data package?		Χ			1
R10	OI	Other problems/anomalies						
			pecial conditions noted in this LRC and ER?	Х				
			plogy used to lower the SDL to minimize the	X				
			under the Texas Laboratory Accreditation	l				
		Program for the analytes, matrices, a data package?	and methods associated with this laboratory	X				
		·		•				



Laboratory	Name:	Accutest Gulf Coast LRC Date:	5/2	1/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa Laboratory Project Number:	TC	8536	5		
Reviewer	Name:	Elessa Sommers Prep Batch Number(s):	VE81	12			
# ¹	A ²	DESCRIPTION	YES	NO	NA ³	NR⁴	ER#
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC	Х				
		limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	Х				
		Was the number of standards recommended in the method used for all analytes?	Х				
		Were all points generated between the lowest and highest standard used to	\ \ \				
		calculate the curve?	X				
		Are ICAL data available for all instruments used?	Х				
		Has the initial calibration curve been verified using an appropriate second source	Х				
		standard?	_ ^				
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method-required frequency?	Х				
		Were percent differences for each analyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each analyte?	Х				
		Was the absolute value of the analyte concentration in the inorganic CCB <mdl?< td=""><td></td><td></td><td>Χ</td><td></td><td></td></mdl?<>			Χ		
S3	0	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	Х				
		Were ion abundance data within the method-required QC limits?	Х				
S4	0	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an	Х				
		analyst?	L^				
		Were data associated with manual integrations flagged on the raw data?	Х				
S6	0	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			Χ		
S7	0	Tentatively identified compounds (TICs):					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate	ĺ		X		
		checks?			_^		
S8	ı	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			Χ		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits	ĺ		х		
		specified in the method?			_^_		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	Х				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or	Ιx				
		evaluation studies?	Ĺ				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other	Ιx				
		appropriate source?					
S13	OI	Compound/analyte identification procedures					
	<u> </u>	Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)	- V				
		Was DOC conducted consistent with NELAC Chapter 5?	X	-	<u> </u>	<u> </u>	
645	<u></u>	Is documentation of the analyst's competency up-to-date and on file?	Х				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documentated, verified, and	Х		1	l	
C4C	-	validated, where applicable?					
S16	OI	Laboratory standard operating procedures (SOPs)	V				
	1	Are laboratory SOPs current and on file for each method performed?	Х	Ь			Ь



	LABOR	RATORY REVIEW C	CHECKLIST (continued): Ex	ception Reports			
Laboratory Name: Accutest Gulf Coast			LRC Date:	5/21/2012			
Project Name:		First Quarterly Well Samp	oling, Pa Laboratory Project Number:	TC8536			
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	VE812			
ER# ¹	# ¹ Description						
1		ng purposes, the method blan n the laboratory data package.	k represents the unadjusted MQL. The DCS	S is on file in the laboratory and is not			
2		ng purposes, the MQL is define SDL/MDL is defined in the re	ed in the report as the RL. The unadjusted I port as the MDL.	MQL/RL is reported in the method			

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8536

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

San VE8	iple 812-MB	File ID E0017766.D	DF 1	Analyzed 05/17/12	By MH	Prep Date n/a	Prep Batch n/a	Analytical Batch VE812

The QC reported here applies to the following samples:

TC8536-1

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
17060-07-0	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	94% 101% 99%	79-122% 75-121% 87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8536

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

TC8536-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Page 1 of 1

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8536

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

TC8536-1

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8537

Sampling Date: 05/13/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Sample Summary

EarthCon Consultants

Job No: TC8537

First Quarterly Well Sampling, Parker County, Texas

Sample	Collected	Ma	ntrix	Client
Number	Date Time	By Received Co	de Type	Sample ID
TC8537-1	05/13/12 15:05	05/15/12 AQ	Ground Water	WWW19-WIL-051312





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8537

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 2:46:08 PM

1 Sample was collected on 05/13/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8537. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8201-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Page 1 of 1

Report of Analysis

Client Sample ID: WWW19-WIL-051312

 Lab Sample ID:
 TC8537-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017767.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	96% 100% 99% 95%		79-122% 75-121% 87-119%		

 $U = \ Not \ detected \qquad SDL \ - \ Sample \ Detection \ Limit$

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW19-WIL-051312

 Lab Sample ID:
 TC8537-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002594.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2	SS002595.D	10	05/21/12	FI	n/a	n/a	GSS131

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	1.09 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0762	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

 $MQL = \ Method \ Quantitation \ Limit$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



PAGE ___ OF ___

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	III sections and a process a	8::

CHAIN OF CUSTODY

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	First Quarte	ly Well Samplin	n Parkar C	ounty '	Tavae								Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175				l						
EarthCon Consultants, Inc. Street Address	Street	ly **en camping	g, raiker C	district	ICABS	mana	ionince:		ar is		illermide	90	턡										DW - Drinking Water GW - Ground Water
4800 Sugar Grove Blvd., Suite 390				Billing	Informati	on (If di	fferer	at from	Renor	t to)			ž						1			- 1	WW - Water
City. State Zig	City		Slate	Compar						,		_	E .									- 1	SW - Surface Water SO - Soil
Stafford TX 774	77			1									별										SL- Sludge
Project Contact E-mail	Project #	•		Street A	ddress								şö				1 .						SED-Sediment OI - Oil
Gabriela Floreslovo													, ,									ı	LIQ - Other Liquid
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281-201-3513													<u> </u>										WP - Wipe
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Sample # Field ID / Point of Collection	Date	Time	Sampled By	Matrix	battles	Z S	ă :	£ E	5 5	월입	2 2	5 m	m n										LAB USE ONLY
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TC8537: Chain of Custody Page 1 of 4





CCUTEST

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC8	537	Client:	EARTHCON			Project: FIRST QUARTERLY WELL SAM					
Date / Time Received: 5/15/	2012		Delivery Method:		FedEx #	\irbill #'s:	800040672089	.,,.,,.,,.,,.,,.,,.,,.,,.,,			
No. Coolers: 1	Therm ID:	IRGUN5			Te	mp Adjus	tment Factor:	-0.5			
Cooler Temps (Initial/Adjust	ed): #1: (3.3/	(2.8)									
Cooler Security Y	or N		_Y or	· N_	Sample Integrity	- Docume	entation	<u>Y</u>	or N		
1. Custody Seals Present:		3. COC P	resent:		Sample labels p	esent on bo	ottles:	~			
2. Custody Seals Intact:	4 .	Smpl Date	es/Time OK 🔽		Container labeling			~			
Cooler Temperature	Y or N				3. Sample containe	r label / CC	OC agree:	V			
Temp criteria achieved:	<u> </u>	_			Sample Integrity	- Conditi	on	Υ	or N		
Cooler temp verification:	Infared Gu	un			Sample recvd with			~			
Cooler media:	Ice (Bag)	_		2. All containers ac			V			
Quality Control Preservatio	Y or N	I N/A	WTB	STB	3. Condition of san	ıple:			Intact		
1. Trip Blank present / cooler:	v		V		Sample Integrity	- Instruc	tions_	<u>Y</u>	or N	N/A	
2. Trip Blank listed on COC:					1. Analysis reques	ted is clear		✓			
3. Samples preserved properly:	-	 			2. Bottles-received	-for-unspec	ified-tests		<u> </u>		
4. VOCs headspace free:	v 🗆				3. Sufficient volum	e recvd for	analysis:	V			
					4. Compositing ins	tructions cl	ear:			V	
					5. Filtering instruct	ions clear:				✓	
Comments Trip blank is reported	ed in job TC853	16.									
				40405.11							

TC8537: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8537

CSR: Elessa Sommers

Response Date:

5/16/2012

Response: Trip blank is reported in job TC8536.

4

TC8537: Chain of Custody Page 3 of 4









Sample Receipt Log

Job #: TC8537

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8537-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8537-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8537-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8537-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3,3	-0.5	2.8
1	TC8537-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8537-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8537: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC8537 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

į.	R1	Field chain-of-custody documentation;	,
₽	R2	Sample identification cross-reference;	
₽	R3	Test reports (analytical data sheets) for	or each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e) i	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank	samples;
	R6	Test reports/summary forms for labora	atory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/ma	atrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if appli	icable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b) -	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQL	_s) and detectability check sample results for each analyte for each
₽	R10	Other problems or anomalies.	
The Excep	tion Report	for each "No" or "Not Reviewed (NR)" if	tem in Laboratory Review Checklist and for each analyte, matrix, and
method fo	r which the I	laboratory does not hold NELAC accred	litation under the Texas Laboratory Accreditation Program.
Release S	Statement:	I am responsible for the release of this	laboratory data package. This laboratory is NELAC accredited under the
Texas Lab	oratory Acc	reditation Program for all the methods,	analytes, and matrices reported in this data package except as noted in
the Excep	tion Report.	This data package has been reviewed	by the laboratory and is complete and technically compliant with the
requireme	nts of the m	ethods used, except where noted by the	e laboratory in the attached exception reports. By my signature below, I
affirm to th	e best of my	y knowledge, all problems/anomalies, o	bserved by the laboratory as having the potential to affect the quality of
the data, h	ave been id	dentified by the laboratory in the Laborat	tory Review Checklist, and no information or data have been knowingly
withheld.			
	applicable:	This laboratory meets an exception un	der 30 TAC&25.6 and was last inspection by
[]		[X] TCEQ or [] on April 20	11. Any findings affecting the data in this laboratory data package are
		noted in the Exception Reports herein.	. The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/23/2012

Official Title (printed)

Laboratory Director



	L	ABORATORY REVIEW (CHECKLIST: REPORTABLE	DAT	Ά			
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	3/20	12		
Project Na	me:	First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number: Prep Batch Number(s):	_	TC8537			
Reviewer		Elessa Sommers			VE81			
# ¹	A ²	DESCRIPTION		YES	NO	NA³	NR⁴	ER #5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		Did samples meet the laboratory's st upon receipt?	х					
		Were all departures from standard or	onditions described in an exception report?	Х				
R2	OI	Sample and quality control (QC) ic						
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-	referenced to the corresponding QC data?	Х				
R3	OI	Test reports						
		Were samples prepared and analyze		X				
		Other than those results <mql, standards?<="" td="" were=""><td>e all other raw values bracketed by calibration</td><td>х</td><td></td><td></td><td></td><td></td></mql,>	e all other raw values bracketed by calibration	х				
		Were calculations checked by a pee	r or supervisor?	Х				
		Were all analyte identifications check		Х				
		Were sample detection limits reporte	ed for all analytes not detected?	Х				
			t samples reported on a dry weight basis?			Χ		
		Were % moisture (or solids) reported				Χ		
		·	platile analysis extracted with methanol per			Х		
		SW846 Method 5035?						
		If required for the project, are TIC's re			Х			
R4	0	Surrogate recovery data	V					
		Were surrogates added prior to extra Were surrogate percent recoveries in	X				—	
R5	OI	Test reports/summary forms for b	 ^					
- 13	<u> </u>	Were appropriate type(s) of blanks a	X					
		Were blanks analyzed at the approp		X				
		Were method blanks taken through the entire analytical process, including						
		preparation and, if applicable, cleanu	, ,	X				
		Were blank concentrations <mql?< td=""><td>, p p 1000au 100 .</td><td>X</td><td></td><td></td><td></td><td></td></mql?<>	, p p 1000au 100 .	X				
R6	OI	Laboratory control samples (LCS)):					
		Were all COCs included in the LCS?	?	Х				
		Was each LCS taken through the en cleanup steps?	tire analytical procedure, including prep and	Х				
		Were LCSs analyzed at required free	quency?	X				
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	Х				
		Does the detectablility check sample detect the COCs at the MDL used to	data document the laboratory's capability to calculate the SDLs?	х				2
		Was the LCSD RPD within QC limits				Х		
R7	OI	Matrix spike (MS) and matrix spike	e duplicate (MSD) data					
			nalytes included in the MS and MSD?	Х				
		Were MS/MSD analyzed at the appre		Х				
		Were MS (and MSD, if applicable) %	· · · · · · · · · · · · · · · · · · ·	<u> </u>	Х			1
		Were the MS/MSD RPDs within labor	oratory QC limits?	X				
R8	OI	Analytical duplicate data						
		Were appropriate analytical duplicate		X				
		Were analytical duplicates analyzed		X				<u> </u>
			iations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs)		V				
			rte included in the laboratory data package? centration of the lowest non-zero calibration	X				
			centration of the lowest non-zero calibration cluded in the laboratory data package?	+^	Х			3
R10	OI	Other problems/anomalies	nuueu iii iile laboratory uata package?		_^			
			pecial conditions noted in this LRC and ER?	X				
			plogy used to lower the SDL to minimize the	^				
			under the Texas Laboratory Accreditation	†^				
			and methods associated with this laboratory	х				



Laboratory Name:		Accutest Gulf Coast LRC Date:					5/23/2012			
Project Na	me:	First Quarterly Well Sampling, Pa Laboratory Project Number:				TC8537				
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS131, VE812						
#1	A ²	DESCRIPTION		YES	NO	NA3	NR⁴	ER#5		
S1	OI	Initial calibration (ICAL)								
		Were response factors and/or relative	e response factors for each analyte within QC	х						
		limits?		^						
		Were percent RSDs or correlation co	efficient criteria met?	Χ						
			mended in the method used for all analytes?	Х						
			ne lowest and highest standard used to	l x l						
		calculate the curve?								
		Are ICAL data available for all instrun		Х						
			verified using an appropriate second source	l x l						
		standard?	10 11 (100)(11) 00)							
S2	OI		erification (ICCV AND CCV) and continuing	I	_					
		Was the CCV analyzed at the method	1 ,	X						
			alyte within the method-required QC limits?	X						
		Was the ICAL curve verified for each	,	Х						
		-	e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Χ</th><th></th><th>_</th></mdl?<>			Χ		_		
S3	0	Mass spectral tuning		V I						
		Was the appropriate compound for th		X						
- 64		Were ion abundance data within the	method-required QC limits?	^	_					
S4	0	Internal standards (IS)	nes within the method-required QC limits?	ΧΙ						
S5	OI	Raw data (NELAC Section 5.5.10)	nes within the method-required QC limits?							
- 33	OI .		matograms spectral data) reviewed by an		_					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?								
		Were data associated with manual integrations flagged on the raw data?								
S6	0	Dual column confirmation								
		Did dual column confirmation results			Х					
S7	0	Tentatively identified compounds (TICs):								
		If TICs were requested, were the mass spectra and TIC data subject to appropriate								
		checks?				Х				
S8	ı	Interference Check Sample (ICS) r	esults							
		Were percent recoveries within meth-	od QC limits?			Χ				
S9	I	Serial dilutions, post digestion spi	kes, and method of standard additions							
		Were percent differences, recoveries	, and the linearity within the QC limits			Х				
		specified in the method?				^				
S10	OI	Method detection limit (MDL) studi								
		Was a MDL study performed for each		Х						
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2		
S11	OI	Proficiency test reports								
		· ·	ceptable on the applicable proficiency tests or	X						
040		evaluation studies?								
S12	OI	Standards documentation	s NIST-traceable or obtained from other							
		1	is NIST-traceable of obtained from other	Х						
S13	OI	appropriate source? Compound/analyte identification p	raaduraa		_					
313	<u> </u>	Are the procedures for compound/ana		Х						
S14	OI	Demonstration of analyst compete	,	_^_						
- 514	<u> </u>	Was DOC conducted consistent with		X						
		Is documentation of the analyst's com	·	X	\dashv					
S15	OI		ion for methods (NELAC Chapter 5)	_^						
			the data documentated, verified, and	. 1						
		validated, where applicable?		X						
S16	OI	Laboratory standard operating pro	ocedures (SOPs)							
		Are laboratory SOPs current and on f		Х						
			** ** * * * * * * * * * * * * * * * *		_					



	LABOR	RATORY REVIEW	CHECKLIST (continued): E	xception Reports
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012
Project Na	me:	First Quarterly Well Sam	pling, Pa Laboratory Project Number:	TC8537
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS131, VE812
ER#1	Description	on		
1	All anomal	ies are discussed in the case	narrative.	
2	l	atory does not perform DCS are values in the Texas TRRP I	analysis for Method RSKSOP-147/175. The PCL tables.	e compounds reported are not listed o
3		ng purposes, the method blar n the laboratory data package	nk represents the unadjusted MQL. The DC	CS is on file in the laboratory and is no
4		ng purposes, the MQL is defined in the report a	ned in the report as the RL. The unadjusted as the MDL.	MQL/RL is reported in the method
	l			

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8537

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VE812-MB	File ID E0017766.D	DF 1	Analyzed 05/17/12	By MH	Prep Date n/a	Prep Batch n/a	Analytical Batch VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8537

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8537

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12
CAS No.	Surrogate Recoveries	MS	MSD	TO	28215-7	Limits			

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1969 52 7	Dibromofluoromethane	92%	94%	92%	79-122%
				>=,0	
	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8537

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS131-MB	File ID SS002579.D	DF	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8537

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS131-BS	File ID SS002580.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	24.2	113	70-130
74-85-1	Ethene	57.4	64.7	113	70-130
74-84-0	Ethane	43.3	46.9	108	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.9	98	70-130
106-97-8	Butane	76.6	71.2	93	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8537

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	SS002587.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002585.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002586.D	5	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8200-1 ug/l (Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	491 ^b	21.5	661	787* a	60-140
74-85-1	Ethene	1.0 U	57.4	52.6	92	60-140
74-84-0	Ethane	20.4	43.3	71.6	118	60-140
74-98-6	Propane	1.5 U	60.6	58.2	96	60-140
75-28-5	Isobutane	1.5 U	72.5	66.0	91	60-140
106-97-8	Butane	1.5 U	76.6	64.8	85	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8537

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8201-1DUP	SS002592.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8201-1	SS002591.D	1	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	TC8201-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	5.16	5.50		6	30
74-85-1	Ethene	1.0 U	ND		nc	30
74-84-0	Ethane	1.0 U	ND		nc	30
74-98-6	Propane	1.5 U	ND		nc	30
75-28-5	Isobutane	1.5 U	ND		nc	30
106-97-8	Butane	1.5 U	ND		nc	30





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8538

Sampling Date: 05/13/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

Job No:

TC8538

First Quarterly Well Sampling, Parker County, Texas

Sample	Collected			Matr		Client
Number	Date	Time By	Received	Code	Type	Sample ID
TC8538-1	05/13/12	13:40	05/15/12	AQ	Ground Water	WWW21-VAN-051312





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8538

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 3:00:28 PM

1 Sample was collected on 05/13/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8538. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8200-1MS, TC8201-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results
Report of Analysis



Report of Analysis

Client Sample ID: WWW21-VAN-051312

 Lab Sample ID:
 TC8538-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017768.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	95% 101% 97% 95%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



دن

Report of Analysis

Client Sample ID: WWW21-VAN-051312

 Lab Sample ID:
 TC8538-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002596.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2							

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.0796	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00361	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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CHAIN OF CUSTODY

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	Client / Reporting Information			Project														Red	ues	ted	Ana	lyse	s	3		Matrix Codes
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	on Consultants, Inc.		ly Well Sampli	ng, Parker C	ounty, 1	exas										ane						1		İ		DW - Drinking Water
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Staffor																ţ			1							SO - Soil SL- Sludge
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Phone #		Client Purchase	Order#		City					State			Zip			# £										SOL - Other Solid WP - Wipe
281-20 Sampler	1-3513 (s) Name(s) Pho	ne # Project Manager			Attention										1	e X										FB-Field Blank
K	4THLEEN BUXTON 281-2														8	Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175										
H	THE CIVIL CONTRACTOR		Colle	ction					_	ber of p	reserv	ed Batt	lles		826	1 e e									L	
Accutest						# a!	Н	NaOH ZAMaOH	8	0 4	Vater	핅.	NaHSO4	ENCORE	BTEX 8260B	ntan opa	-			1					- 1	1
Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	tiottles	포	NaO	HWO	H2SO4	DIWan	MEOH	2 2	E 6	6											LAB USE ONLY
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TC8538: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Accutest Job Number:	C8538	Client: EARTHC	ON .	Project: FIRST QUAR I	ERLY WEI	L SAMPLII	NG PARKER
Date / Time Received:	5/15/2012	Delivery	Method:	FedEx Airbill #'s: 800040672089			
No. Coolers: 1	Therm ID:	IRGUN5		Temp Adjustment Factor:	-0.5		
Cooler Temps (Initial/Ad	justed): #1: (3.3/	(2.8)					
Cooler Security	Y or N ✓ □	3. COC Present:	Y or N	Sample Integrity - Documentation	Y	or N	
Custody Seals Present: Custody Seals Intact:		Smpl Dates/Time OK		Sample labels present on bottles: Container labeling complete:	<u>v</u>		
Cooler Temperature	Y or N			Sample container label / COC agree:	V		
1. Temp criteria achieved:	✓ □			Sample Integrity - Condition	<u>Y</u>	or N	
Cooler temp verification:	Infared G			Sample recvd within HT:	V		
3. Cooler media:	Ice (Bag	1)		All containers accounted for:	✓		
Quality Control Preserva	atio <u>Y or N</u>	I N/A	WTB STB	3. Condition of sample:		Intact	
1. Trip Blank present / coole		-		Sample Integrity - Instructions	Y	or N	N/A
2. Trip Blank listed on COC	: 🗆 🗹			Analysis requested is clear:	•		
3. Samples preserved prope	erly.			2. Bottles-received for unspecified tests		<u> </u>	
4. VOCs headspace free:	9			Sufficient volume recvd for analysis:	Y		
				Compositing instructions clear:			•
				5. Filtering instructions clear:			V
Comments Trip blank is re	ported in job TC853	36.					
Accutest Laboratories V:713.271.4700				arvin Drive 271.4770			ouston, TX 77036 www.acculest.com

TC8538: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8538

CSR: Elessa Sommers

Response Date:

5/16/2012

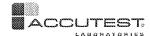
Response: Trip blank is reported in job TC8536.

4

TC8538: Chain of Custody Page 3 of 4







Sample Receipt Log

Job #: TC8538

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8538-1	40mi	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8538-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8538-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8538-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8538-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8538-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8538: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8538 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

₽	R2	Sample identification cross-referer	nce;
	R3	Test reports (analytical data sheet	s) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for bla	ank samples;
	R6	Test reports/summary forms for lal	boratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
₽	R7	Test reports for project matrix spik	e/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if a	applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9		MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
		•	R)" item in Laboratory Review Checklist and for each analyte, matrix, and creditation under the Texas Laboratory Accreditation Program.
Texas La the Excep requirement affirm to t	boratory Acc otion Report. ents of the m he best of m	reditation Program for all the metho This data package has been review tethods used, except where noted by y knowledge, all problems/anomalie	this laboratory data package. This laboratory is NELAC accredited under the ds, analytes, and matrices reported in this data package except as noted in wed by the laboratory and is complete and technically compliant with the y the laboratory in the attached exception reports. By my signature below, I as, observed by the laboratory as having the potential to affect the quality of poratory Review Checklist, and no information or data have been knowingly
	applicable:	This laboratory meets an exception	n under 30 TAC&25.6 and was last inspection by
[]		noted in the Exception Reports he	I 2011. Any findings affecting the data in this laboratory data package are rein. The official signing the cover page of the report in which these data are his data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

5/23/2012



	LABORATORY REVIEW CHECKLIST: REPORTABLE DATA										
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	3/20	12					
Project Na		First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	_	8538						
Reviewer		Elessa Sommers	Prep Batch Number(s):			VE81					
# ¹	A²	DESCRIPTION		YES	NO	NA	NR*	ER #5			
R1	OI	CHAIN-OF-CUSTODY (C-O-C):									
		upon receipt?	andard conditions of sample acceptability	Х							
		Were all departures from standard co	onditions described in an exception report?	X							
R2	OI	Sample and quality control (QC) ic									
			s-referenced to the laboratory ID numbers?	Х							
		Are all laboratory ID numbers cross-	referenced to the corresponding QC data?	Х							
R3	OI	Test reports									
		Were samples prepared and analyze		X							
		Other than those results <mql, standards?<="" td="" were=""><td>e all other raw values bracketed by calibration</td><td>X</td><td></td><td></td><td></td><td></td></mql,>	e all other raw values bracketed by calibration	X							
		Were calculations checked by a pee	r or supervisor?	Х							
		Were all analyte identifications check		Х							
		Were sample detection limits reporte		Х							
			t samples reported on a dry weight basis?			Χ					
		Were % moisture (or solids) reported				Х					
		•	platile analysis extracted with methanol per			Х					
		SW846 Method 5035? If required for the project, are TIC's re	anartad?	-		Х					
R4	0	Surrogate recovery data	eported?								
N4	- 0	Were surrogates added prior to extra	ection?	Х							
			a all samples within the laboratory QC limits?	TX							
R5	OI	Test reports/summary forms for b	· · · · · · · · · · · · · · · · · · ·	<u> </u>							
	<u> </u>	Were appropriate type(s) of blanks a		Х							
		Were blanks analyzed at the approp		Х							
			he entire analytical process, including	—							
		preparation and, if applicable, cleanu	ıp procedures?	X							
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х							
R6	OI	Laboratory control samples (LCS)									
		Were all COCs included in the LCS?		X							
		Was each LCS taken through the en cleanup steps?	tire analytical procedure, including prep and	X							
		Were LCSs analyzed at required free	quency?	X							
			%Rs within the laboratory QC limits?	X							
			data document the laboratory's capability to								
		detect the COCs at the MDL used to	calculate the SDLs?	X				2			
		Was the LCSD RPD within QC limits	5?			Х					
R7	OI	Matrix spike (MS) and matrix spike									
			nalytes included in the MS and MSD?	X							
		Were MS/MSD analyzed at the approximation and the second s		X	,,						
		Were MS (and MSD, if applicable) %	· · · · · · · · · · · · · · · · · · ·	H.,	Х			1			
		Were the MS/MSD RPDs within labor	pratory QC limits?	X							
R8	OI	Analytical duplicate data	and and for each most 0	V							
		Were appropriate analytical duplicate		X	\vdash						
		Were analytical duplicates analyzed		X							
Pa	OI	Method quantitation limits (MQLs)	iations within the laboratory QC limits?	<u> </u>							
R9	0		: te included in the laboratory data package?	Х							
			centration of the lowest non-zero calibration	 ^	\vdash						
			luded in the laboratory data package?	+^	Х			3			
R10	OI	Other problems/anomalies	ino indocator, data paoriago.								
	<u> </u>		pecial conditions noted in this LRC and ER?	Х							
			ology used to lower the SDL to minimize the	X							
		1	under the Texas Laboratory Accreditation								
			and methods associated with this laboratory	Х							



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	3/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC	3538	3		
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	31,	VE81	2	
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?		^				
		Were percent RSDs or correlation co		Χ				
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	l _x l				1
		calculate the curve?						
		Are ICAL data available for all instrun		Х				
			verified using an appropriate second source	l x l				1
		standard?		^				
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each	,	Х				
			e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Χ</th><th></th><th></th></mdl?<>			Χ		
S3	0	Mass spectral tuning						
		Was the appropriate compound for the		Х				
	_	Were ion abundance data within the	method-required QC limits?	Х				
S4	0	Internal standards (IS)						
			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		, , , , , , , , , , , , , , , , , , , ,	matograms, spectral data) reviewed by an	X				1
		analyst?	tti flad th d-t-0					
		Were data associated with manual in	tegrations hagged on the raw data?	Х	_			
S6	0	Dual column confirmation Did dual column confirmation results	most the method required OC2			Х		
S7	0	Tentatively identified compounds				^		_
31			s spectra and TIC data subject to appropriate					
		checks?	ss spectra and TiC data subject to appropriate			Χ		1
S8	1	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within methor			$\overline{}$	Х		
S9	ı		kes, and method of standard additions			^		
			, and the linearity within the QC limits					
		specified in the method?	, and the integrity maint the QC intile			Х		1
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each		Х				
		Is the MDL either adjusted or support		Х				2
S11	OI	Proficiency test reports						
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	V				
		evaluation studies?		X				1
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	x				
		appropriate source?		^				
S13	OI	Compound/analyte identification p	rocedures					
		Are the procedures for compound/ana	,	Х				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with	·	Х				
		Is documentation of the analyst's com		Х				
S15	OI		ion for methods (NELAC Chapter 5)					
		· ·	the data documentated, verified, and	x				i
		validated, where applicable?		_^				
S16	OI	Laboratory standard operating pro						
		Are laboratory SOPs current and on f	ile for each method performed?	Х				



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports										
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012							
Project Na	me:	First Quarterly Well Sampling, P	Laboratory Project Number:	TC8538							
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s): GSS131, VE812								
ER# ¹	Description										
1	All anomalies are discussed in the case narrative.										
2		atory does not perform DCS analysis e values in the Texas TRRP PCL tab	for Method RSKSOP-147/175. The compound les.	ls reported are not listed or							
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.										
4		ng purposes, the MQL is defined in the SDL is defined in the report as the M	ne report as the RL. The unadjusted MQL/RL is IDL.	reported in the method							

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8538

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VE812-MB	File ID E0017766.D	DF 1	Analyzed 05/17/12	By MH	Prep Date n/a	Prep Batch n/a	Analytical Batch VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries	Recoveries		
17060-07-0	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	94% 101% 99%	79-122% 75-121% 87-119%	
460-00-4	4-Bromofluorobenzene	97%	80-133%	



Method: SW846 8260B

Blank Spike Summary Job Number: TC8538

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample VE812-BS	File ID E0017764.D	DF	Analyzed 05/17/12	By MH	Prep Date n/a	Prep Batch n/a	Analytical Batch VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8538

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12
	-								

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8538

Job Number:

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-MB	File ID SS002579.D	DF 1	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8538

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS131-BS	File ID SS002580.D	DF	Analyzed 05/21/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS131

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	24.2	113	70-130
74-85-1	Ethene	57.4	64.7	113	70-130
74-84-0	Ethane	43.3	46.9	108	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.9	98	70-130
106-97-8	Butane	76.6	71.2	93	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8538

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8200-1MS	SS002587.D	1	05/21/12	FΙ	n/a	n/a	GSS131
TC8200-1	SS002585.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8200-1	SS002586.D	5	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

TC8538-1

CAS No.	Compound	TC820 ug/l	00-1 Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	491 b		21.5	661	787* a	60-140
74-85-1	Ethene	1.0 U		57.4	52.6	92	60-140
74-84-0	Ethane	20.4		43.3	71.6	118	60-140
74-98-6	Propane	1.5 U		60.6	58.2	96	60-140
75-28-5	Isobutane	1.5 U		72.5	66.0	91	60-140
106-97-8	Butane	1.5 U		76.6	64.8	85	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8538

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8201-1DUP	SS002592.D	1	05/21/12	FI	n/a	n/a	GSS131
TC8201-1	SS002591.D	1	05/21/12	FI	n/a	n/a	GSS131

The QC reported here applies to the following samples:

TC8538-1

CAS No.	Compound	TC8201-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	5.16	5.50	6	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	1.0 U	ND	nc	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8539

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Section 6: GC Volatiles - QC Data Summaries	
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Sample Summary

EarthCon Consultants

Job No: TC8539

First Quarterly Well Sampling, Parker County, Texas

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
TC8539-1	05/12/12	09:10	05/15/12	AQ	Ground Water	WWW18-STR-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8539

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 3:21:01 PM

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8539. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results
Report of Analysis



Report of Analysis

Client Sample ID: WWW18-STR-051212

 Lab Sample ID:
 TC8539-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017769.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	96% 100% 97% 98%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



ω

Report of Analysis

Client Sample ID: WWW18-STR-051212

 Lab Sample ID:
 TC8539-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002612.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002613.D	5	05/22/12	FI	n/a	n/a	GSS132

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.586 a	0.0025	0.0015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0268	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

 $MQL = \ Method \ Quantitation \ Limit$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



	DW - Drinking Water		
	GW - Ground Water		
4.	WW - Water SW - Surface Water		
_	SO - Soil		
	SL- Sludge		
	SED-Sediment		
	OI - Oii	1	
42	LIQ - Other Liquid AIR - Air		
	SOL - Other Solid		
	WP - Wipe		

PAGE ___ OF ___

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Client / Reporting Information			Project	Informa	ation	- 51									Req	ues	ted	Ana	lyse	5			Matrix Codes
Company Name	Project Name:																						
EarthCon Consultants, Inc.	First Quarte	Quarterly Well Sampling, Parker County, Texas						Ethene, Isobutane, Methane,															
Street Address	Street	Control of the contro						3	뵱										DW - Drinking Water GW - Ground Water				
4800 Sugar Grove Blvd., Suite 390				Billing	Informatio	n f if d	iiffarer	nt from I	Report	to)			ž										WW - Water
City State Zip	City		State		y Name							1	l e			1	l						SW - Surface Water SO - Soil
Stafford TX 77477								ä			1	1						SL- Sludge SED-Sediment					
Project Contact E-mail	Project #			Street A	ddress								S										OI - Oil
Gabriela Floreslovo								State				4	ne,							1			LIQ - Other Liquid AIR - Air
	Client Purchase	Order#		City				State			Zip		the 175	1						1			SOL - Other Solid
281-201-3513 Sampler(s) Name(s) , Phone #	Project Manage			Attention	•-							-	8. E		l					ł			WP - Wipe FB-Field Blank
Kathleen Buxton 251-240				Auguno								m	han y										
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		1					Ŧ	T.	<u> </u>		3 2 6 6	BTEX 8260B	Butane, Ethane, E Propane by RSK-										
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CHAIN OF CUSTODY

ATTENDED TO THE PROPERTY OF TH

TC8539: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Client: EARTHCON Project: FIRST QUARTERLY WELL SAMPLING PARKER Accutest Job Number: TC8539 FedEx Airbill #'s: 800040672089 Date / Time Received: 5/15/2012 Delivery Method: Temp Adjustment Factor: -0.5 No. Coolers: 1 Therm ID: IRGUN5 Cooler Temps (Initial/Adjusted): #1: (3.3/2.8) Sample Integrity - Documentation Y or N Υ or N Cooler Security Y or N 3. COC Present: ~ **V** V 1. Custody Seals Present: 1. Sample labels present on bottles: 4. Smpl Dates/Time OK 2. Custody Seals Intact: **V V** 2. Container labeling complete: 3. Sample container label / COC agree: **V Cooler Temperature** Y or N Υ 1. Temp criteria achieved: V or N Sample Integrity - Condition 2. Cooler temp verification: Infared Gun **V** 1. Sample recvd within HT: 3. Cooler media: Ice (Bag) 2. All containers accounted for: V 3. Condition of sample: Intact Quality Control Preservatio Y or N N/A WTB STB **V** 1. Trip Blank present / cooler: V Υ or N N/A Sample Integrity - Instructions V 2. Trip Blank listed on COC: 1. Analysis requested is clear: V -3. Samples preserved properly: 2. Bottles received for unspecified tests **Y** 4. VOCs headspace free: V 3. Sufficient volume recvd for analysis: V 4. Compositing instructions clear: **V** 5. Filtering instructions clear:

Accutest Laboratorie	
ACCRISSI LADDIAIONE	;3
V:713.271.4700	

Comments Trip blank is reported in job TC8536.

10165 Harwin Drive F: 713 271 4770 Houston, TX 77036 www/accutest.com

Page 1 of 3

TC8539: Chain of Custody Page 2 of 4







Problem Resolution

Accutest Job Number: TC8539

CSR: Elessa Sommers

Response Date:

5/16/2012

Response: Trip blank is reported in job TC8536.

1

TC8539: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8539

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Voi	Bot #	Location	Pres	Hq	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8539-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8539-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8539-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8539-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8539-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8539-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8539: Chain of Custody

Page 4 of 4



Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review checklist, and the following reportable data:

TC8539 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

į.	R1	Field chain-of-custody documentation	1;
	R2	Sample identification cross-reference	
į.	R3	Test reports (analytical data sheets) f	or each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
Ū.	R5	Test reports/summary forms for blank	samples;
	R6	Test reports/summary forms for labor	atory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/n	natrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if app	
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ģ	R9		Ls) and detectability check sample results for each analyte for each
Ō	R10	Other problems or anomalies.	
			item in Laboratory Review Checklist and for each analyte, matrix, and ditation under the Texas Laboratory Accreditation Program.
Release \$	Statement:	I am responsible for the release of this	laboratory data package. This laboratory is NELAC accredited under the
Texas Lab the Excep requirement affirm to the	ooratory Acc tion Report. Ints of the made best of m	reditation Program for all the methods, This data package has been reviewed tethods used, except where noted by the y knowledge, all problems/anomalies,	analytes, and matrices reported in this data package except as noted in by the laboratory and is complete and technically compliant with the le laboratory in the attached exception reports. By my signature below, I observed by the laboratory as having the potential to affect the quality of attory Review Checklist, and no information or data have been knowingly
Check, if	applicable	This laboratory meets an exception u	nder 30 TAC&25.6 and was last inspection by

[X] TCEQ or [] _____ on April 2011. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement

5/23/2012

Official Title (printed)

Laboratory Director



Laboratory	/ Name:		DATA 5/23/2012							
Laboratory	rivallic.	Accusest Guil Coast	.RC Date:	312	5/20	14				
		First Quarterly Well Sampling,								
Project Na	ıme:	Parker County, Texas	aboratory Project Number:	тс	8539)				
Reviewer	Name:	Elessa Sommers P	Prep Batch Number(s):	GSS	132,	VE81:	2			
# ¹	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴ER			
R1	OI	CHAIN-OF-CUSTODY (C-O-C):								
		Did samples meet the laboratory's stand	dard conditions of sample acceptability	X						
		upon receipt?								
		Were all departures from standard cond	ditions described in an exception report?	Х						
R2	OI	Sample and quality control (QC) ider	ntification							
		Are all field sample ID numbers cross-re	referenced to the laboratory ID numbers?	Х						
		Are all laboratory ID numbers cross-refe	erenced to the corresponding QC data?	Х						
R3	OI	Test reports								
		Were samples prepared and analyzed	within holding times?	Х						
			Il other raw values bracketed by calibration	X						
		standards?	•	X						
		Were calculations checked by a peer or	r supervisor?	Х						
		Were all analyte identifications checked	d by a peer or supervisor?	Х						
		Were sample detection limits reported f	for all analytes not detected?	Х						
		Were all results for soil and sediment s	amples reported on a dry weight basis?			Х				
		Were % moisture (or solids) reported for				Х				
			tile analysis extracted with methanol per			Х				
		SW846 Method 5035?	. 10	<u> </u>			_			
		If required for the project, are TIC's repo	orted?		Щ	Х				
R4	0	Surrogate recovery data				_				
		Were surrogates added prior to extracti		X						
			Ill samples within the laboratory QC limits?	X	Ш					
R5	OI	Test reports/summary forms for blar	•	- V		_				
		Were appropriate type(s) of blanks ana Were blanks analyzed at the appropriate	X							
			X	\vdash						
		Were method blanks taken through the		Х						
		preparation and, if applicable, cleanup Were blank concentrations <mql?< td=""><td>procedures?</td><td>X</td><td></td><td>_</td><td></td></mql?<>	procedures?	X		_				
R6	OI	Laboratory control samples (LCS):	<u> </u>							
INU	Oi	Were all COCs included in the LCS?		Х			$\overline{}$			
			e analytical procedure, including prep and			_				
		cleanup steps?	o analytical procedure, moldaling prop and	X						
		Were LCSs analyzed at required freque	encv?	X						
		Were LCS (and LCSD, if applicable) %	•	X						
			ata document the laboratory's capability to							
		detect the COCs at the MDL used to ca		X			2			
		Was the LCSD RPD within QC limits?		1		Х				
R7	OI	Matrix spike (MS) and matrix spike d	duplicate (MSD) data							
		Were the project/method specified anal		Х						
		Were MS/MSD analyzed at the appropri	,	Х						
		Were MS (and MSD, if applicable) %Rs			Х		1			
		Were the MS/MSD RPDs within laborar	tory QC limits?	Х						
R8	OI	Analytical duplicate data								
-		Were appropriate analytical duplicates	analyzed for each matrix?	Х						
		Were analytical duplicates analyzed at	the appropriate frequency?	Х						
		Were RPDs or relative standard deviati			Х		1			
R9	OI	Method quantitation limits (MQLs):								
		Are the MQLs for each method analyte	included in the laboratory data package?	Х						
		Do the MQLs correspond to the concern	ntration of the lowest non-zero calibration	Х						
		Are unadjusted MQLs and DCSs include	ded in the laboratory data package?		Χ		3			
R10	OI	Other problems/anomalies								
			cial conditions noted in this LRC and ER?	Х						
		Was applicable and available technolog	gy used to lower the SDL to minimize the	Х						
·		Is the laboratory NELAC-accredited und	der the Texas Laboratory Accreditation							
			d methods associated with this laboratory	Х						
	1	data package?		1	ıl					



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012				
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC	B539)		
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	32,	VE81	2	
#1	A ²	DESCRIPTION		YES	NO	NA ³	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?		^				
		Were percent RSDs or correlation co	efficient criteria met?	Х				
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	x				1
		calculate the curve?						
		Are ICAL data available for all instrum		Х				
			verified using an appropriate second source	x				1
		standard?						
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each	,	Х				
			e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Χ</th><th></th><th></th></mdl?<>			Χ		
S3	0	Mass spectral tuning	and a land for the control of	V 1				
		Was the appropriate compound for th	X					
- 64		Were ion abundance data within the	^	_				
S4	0	Internal standards (IS)	ΧΙ					
S5	OI	Raw data (NELAC Section 5.5.10)	nes within the method-required QC limits?					
	OI .		matograms, spectral data) reviewed by an					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an						1
		analyst? Were data associated with manual integrations flagged on the raw data?						
S6	0	Dual column confirmation	tegrations hagged on the raw data:	Х				
		Did dual column confirmation results	meet the method-required QC?			Х		
S7	0	Tentatively identified compounds						
			s spectra and TIC data subject to appropriate					
		checks?				Х		1
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within method	od QC limits?			Χ		
S9	I	Serial dilutions, post digestion spi	kes, and method of standard additions					
		Were percent differences, recoveries	, and the linearity within the QC limits			Х		
		specified in the method?				^		
S10	OI	Method detection limit (MDL) studi						
		Was a MDL study performed for each		Х				
		Is the MDL either adjusted or support	ed by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports						
		· ·	ceptable on the applicable proficiency tests or	l x l				1
		evaluation studies?						
S12	OI	Standards documentation	NIOT (_			
		1	s NIST-traceable or obtained from other	Х				1
S13	OI	appropriate source?	recodures					
313	UI	Compound/analyte identification procedures Are the procedures for compound/analyte identification documented?						
S14	OI		,	Х				
314	<u> </u>	Demonstration of analyst competency (DOC) Was DOC conducted consistent with NELAC Chapter 5?						
		Is documentation of the analyst's competency up-to-date and on file?						
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)						
- 5.5		Are all the methods used to generate the data documentated, verified, and						
		validated, where applicable?						i
S16	OI	Laboratory standard operating pro	ocedures (SOPs)					
	<u> </u>	Are laboratory SOPs current and on f		Х				
	·	,						



	LABOR	RATORY REVIEW CHEC	CKLIST (continued): Exception	n Reports						
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012						
Project Na	me:	First Quarterly Well Sampling, F	Laboratory Project Number:	TC8539						
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s): GSS132, VE812							
ER# ¹	Description									
1	All anomal	ies are discussed in the case narrativ	e.							
2		atory does not perform DCS analysis e values in the Texas TRRP PCL tab	for Method RSKSOP-147/175. The compound les.	ls reported are not listed or						
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is no included in the laboratory data package.									
4		ng purposes, the MQL is defined in the SDL is defined in the report as the M	ne report as the RL. The unadjusted MQL/RL is IDL.	reported in the method						
		<u> </u>	<u> </u>							
İ										

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8539

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8539

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample VE812-BS	File ID E0017764.D	DF 1	Analyzed 05/17/12	By MH	Prep Date n/a	Prep Batch n/a	Analytical Batch VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xvlene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary Job Number: TC8539

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12
CAS No	Surrogate Recoveries	MS	MSD	TC	8215-7	Limits			

CAS No.	Surrogate Recoveries	MS MSD		TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8539

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GSS132-MB	SS002610.D	1	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8539

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-BS	File ID SS002611.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8539

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8539

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample TC8546-1DUP	File ID SS002628.D	DF	Analyzed 05/22/12	By FI	Prep Date	Prep Batch	Analytical Batch GSS132
TC8546-1	SS002627.D		05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No. Compound ug/l Q ug/l Q RPD Lim	its
74-82-8 Methane 140 0.184 199* 30	
74-85-1 Ethene 1.0 U ND nc 30	
74-84-0 Ethane 8.04 0.0100 200* 30	
74-98-6 Propane 1.5 U ND nc 30	
75-28-5 Isobutane 1.5 U ND nc 30	
106-97-8 Butane 1.5 U ND nc 30	





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8540

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

Job No: TC8540

First Quarterly Well Sampling, Parker County, Texas

Sample Number	Collected Date		Received	Matr Code		Client Sample ID
TC8540-1	05/12/12	16:40	05/15/12	AQ	Ground Water	WWW10-HAY-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8540

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 4:35:36 PM

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8540. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results
Report of Analysis



Report of Analysis

Client Sample ID: WWW10-HAY-051212

 Lab Sample ID:
 TC8540-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017770.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00049 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0	Dibromofluoromethane 1.2-Dichloroethane-D4	94% 99%		79-122% 75-121%		

 $U = \ Not \ detected \qquad SDL \ - \ Sample \ Detection \ Limit$

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW10-HAY-051212

 Lab Sample ID:
 TC8540-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002614.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002615.D	5	05/22/12	FI	n/a	n/a	GSS132

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.486 a	0.0025	0.0015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0938	0.0010	0.00050	mg/l	
74-98-6	Propane	0.0340	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.0033	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00713	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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CHAIN OF CUSTODY

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4800 Sugar Grove Blvd., Suite 390)					nformatic	on (il	differ	ent fr	om Re	port 1	lo}			1	Ethene, Isobutane, Methane, -175										WW - Water SW - Surface Water
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Phone #	Fax #	Client Purchase	Order#		City				- :	State			Zip	\neg		hen 75										AIR - Air SOL - Other Solid
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Sampler(s) Name(s) Kathleen Bluton	Phone #	Project Manager			Attention	ı:									m	Butane, Ethane, Eth Propane by RSK-17										
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Accutest Sample # Field ID / Point of 0	Collection	Date	Time	Sampled By	Matrix	# of bottles	Ē	ZANAG	HND3	H2SO4	DI Wat	TSP TSP	NaHSO4 ENCORE	OTHER	<u> </u>	9 5				L						LAB USE ONLY
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TC8540: Chain of Custody Page 1 of 4



Accutest Laboratories Sample Receipt Summary

MACC	UTEST:
	LABORATORIES

Accutest Laboratories V:713.271.4700

Accutest Job Number:	TC854	10	Clie	nt:	EARTHC	ON				Project:	FIRST QUART	ERLY WE	LL SA	MPLII	NG PARI	KER
Date / Time Received:	5/15/2	:012		_	Delivery I	Method	l:		FedEx	Airbill #'s:	800040672089					of a few states of the states
No. Coolers: 1		Therm I	D: IRGU	IN5						Temp Adjus	tment Factor:	-0.5				
Cooler Temps (Initial/Ad	ljuste	d): <u>#1: (</u> 3	3.3/2.8)													
Cooler Security	<u>Y</u>	or N				<u>Y</u> (or	N_	Sample Integ	ity - Docume	ntation	Y	or	N		
1. Custody Seals Present:	V				esent:	~			1. Sample labe	s present on bo	ottles:	•				
2. Custody Seals Intact:	¥		4. Smpl I	Date	s/Time OK	V			2. Container lal	eling complete	:	V				
Cooler Temperature		Y or	N_						3. Sample cont	ainer label / CC	C agree:	~				
Temp criteria achieved:		V							Sample Integ	rity - Conditi	<u>on</u>	<u>Y</u>	or	N		
2. Cooler temp verification:		Infare	d Gun						1. Sample recv	d within HT:		V				
3. Cooler media:	***************************************	lce (Bag)						2. All container	s accounted for	:	~				
Quality Control Preserv	atio	Y or	r N	N/A		WTB	S	TB_	3. Condition of	sample:			Intact			
1. Trip Blank present / cool	er:	Y				~			Sample Integ	rity - Instruct	ions	<u>Y</u>	or	N	N/A	
2. Trip Blank listed on COC	:		Y						1. Analysis red	uested is clear		~				
3. Samples preserved prop	erly:								2. Bottles rece	ved for unspec	ified tests			/		***************************************
4. VOCs headspace free:		~							3. Sufficient vo	lume recvd for	analysis:	V				
									4. Compositing	instructions cl	ear:				~	
									5. Filtering ins	ructions clear:					V	
Comments Trip blank is re	eported	l in job TC	C8536.													

10165 Harwin Drive F: 713.271.4770

TC8540: Chain of Custody

Houston, TX 77036 www/accutest.com

Page 1 of 3









Problem Resolution

Accutest Job Number: TC8540

CSR: Elessa Sommers

Response Date:

5/16/2012

Response: Trip blank is reported in job TC8536.

_

TC8540: Chain of Custody

Page 3 of 4









Sample Receipt Log

Job #: TC8540

8540 Date / Time Received

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8540-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8540-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8540-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8540-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8540-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8540-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8540: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC8540 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

į.	R1	Field chain-of-custody docu	mentation;
	R2	Sample identification cross-	reference;
	R3	Test reports (analytical data	sheets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data inc	luding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms	s for blank samples;
	R6	Test reports/summary forms	s for laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matr	ix spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplic	ate (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation I	imits (MQLs) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalie	PS.
			ved (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
metnoa t	or which the	e laboratory does not noid NEL	AC accreditation under the Texas Laboratory Accreditation Program.
D.1	01-1	to the consequence of the found of males	
			ase of this laboratory data package. This laboratory is NELAC accredited under the
			methods, analytes, and matrices reported in this data package except as noted in
			reviewed by the laboratory and is complete and technically compliant with the
		•	oted by the laboratory in the attached exception reports. By my signature below, I
			omalies, observed by the laboratory as having the potential to affect the quality of
		identified by the laboratory in t	he Laboratory Review Checklist, and no information or data have been knowingly
withheld.			
Check. i	f applicabl	e: This laboratory meets an ex	ception under 30 TAC&25.6 and was last inspection by
[]		•	
			on April 2011. Any findings affecting the data in this laboratory data package are orts herein. The official signing the cover page of the report in which these data are
		noted in the Exception Repo	Site herein. The emetal signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/23/2012

Official Title (printed)

Laboratory Director



	L	ABORATORY REVIEW (CHECKLIST: REPORTABLE	DAT	Ά				
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012					
Project Na		First Quarterly Well Sampling, Parker County, Texas	Parker County, Texas Laboratory Project Number:						
Reviewer		Elessa Sommers	Prep Batch Number(s):			VE81			
# ¹	A²	DESCRIPTION		YES	NO	NA	NR*	ER #5	
R1	OI	CHAIN-OF-CUSTODY (C-O-C):							
		upon receipt?	andard conditions of sample acceptability	Х					
		Were all departures from standard co	onditions described in an exception report?	X					
R2	OI	Sample and quality control (QC) ic							
			s-referenced to the laboratory ID numbers?	Х					
		Are all laboratory ID numbers cross-	referenced to the corresponding QC data?	Х					
R3	OI	Test reports							
		Were samples prepared and analyze		X					
		Other than those results <mql, standards?<="" td="" were=""><td>e all other raw values bracketed by calibration</td><td>X</td><td></td><td></td><td></td><td></td></mql,>	e all other raw values bracketed by calibration	X					
	Were calculations checked by a peer or supervisor?								
		Were all analyte identifications check		Х					
		Were sample detection limits reporte		Х					
			t samples reported on a dry weight basis?		Ш	X			
			ere % moisture (or solids) reported for all soil and sediment samples? ere bulk soils/solids samples for volatile analysis extracted with methanol per						
		·			Х				
		SW846 Method 5035?	-						
R4	0	If required for the project, are TIC's re Surrogate recovery data			Х				
N4	- 0	Were surrogates added prior to extra	X						
		Were surrogate percent recoveries in	T X						
R5	OI	Test reports/summary forms for b	· · · · · · · · · · · · · · · · · · ·	<u> </u>					
-110	Were appropriate type(s) of blanks analyzed?								
		Were blanks analyzed at the approp		X					
			he entire analytical process, including	—					
		preparation and, if applicable, cleanu	ip procedures?	X					
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х					
R6	OI	Laboratory control samples (LCS)							
		Were all COCs included in the LCS?		X					
		_	tire analytical procedure, including prep and	X					
		cleanup steps? Were LCSs analyzed at required free	THOROUS	X				—	
			%Rs within the laboratory QC limits?	^					
			data document the laboratory's capability to						
		detect the COCs at the MDL used to		X				2	
		Was the LCSD RPD within QC limits		<u> </u>		Х			
R7	OI	Matrix spike (MS) and matrix spike							
			nalytes included in the MS and MSD?	Х					
		Were MS/MSD analyzed at the appre		Х					
		Were MS (and MSD, if applicable) %	· · · · · · · · · · · · · · · · · · ·		Х			1	
		Were the MS/MSD RPDs within labor	oratory QC limits?	Х	\Box				
R8	OI	Analytical duplicate data							
		Were appropriate analytical duplicate		X					
		Were analytical duplicates analyzed		X					
		Were RPDs or relative standard dev		Х			1		
R9	OI	Method quantitation limits (MQLs)	X						
Are the MQLs for each method analyte included in the laboratory data package Do the MQLs correspond to the concentration of the lowest non-zero calibration								—	
			luded in the laboratory data package?	X	Х			3	
R10	OI	Other problems/anomalies							
17.10	- 51	Are all known problems/anomalies/special conditions noted in this LRC and ER?							
			plogy used to lower the SDL to minimize the	X					
		1	under the Texas Laboratory Accreditation	 ^					
			and methods associated with this laboratory	х					



Laboratory Name:		Accutest Gulf Coast	LRC Date:	5/23/2012					
Project Na	me:	First Quarterly Well Sampling, Pa Laboratory Project Number:							
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	132,	VE81	2		
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5	
S1	OI	Initial calibration (ICAL)							
		Were response factors and/or relative	e response factors for each analyte within QC	х					
		limits?							
		Were percent RSDs or correlation co		Χ					
			mended in the method used for all analytes?	Х					
			ne lowest and highest standard used to	x					
		calculate the curve?							
		Are ICAL data available for all instrun		Χ					
			verified using an appropriate second source	x					
		standard?							
S2	OI		erification (ICCV AND CCV) and continuing		-				
		Was the CCV analyzed at the method		Х					
			alyte within the method-required QC limits?	Х				<u> </u>	
		Was the ICAL curve verified for each	Χ						
		-	e concentration in the inorganic CCB <mdl?< td=""><td></td><td></td><td>Х</td><td></td><td></td></mdl?<>			Х			
S3	0	Mass spectral tuning							
		Was the appropriate compound for the	X				—		
		Were ion abundance data within the	method-required QC limits?	Х					
S4	0		Internal standards (IS)						
			Were IS area counts and retention times within the method-required QC limits?						
S5	OI	Raw data (NELAC Section 5.5.10)	and the second s	-	-				
		Were the raw data (for example, chro	Х						
			analyst? Were data associated with manual integrations flagged on the raw data?					—	
S6	0		legrations hagged on the raw data?	Х					
		Dual column confirmation Did dual column confirmation results	most the method required OC2			Х			
S7	0	Tentatively identified compounds				^			
31			es spectra and TIC data subject to appropriate						
		checks?	ss spectra and TiC data subject to appropriate			Χ			
S8	1	Interference Check Sample (ICS) r	esults						
	•	Were percent recoveries within meth-				Х			
S9	1		kes, and method of standard additions			^			
	•		, and the linearity within the QC limits	1					
		specified in the method?	, and the infeatity within the QO infine			Х			
S10	OI	Method detection limit (MDL) studi	ies						
		Was a MDL study performed for each		Х					
		Is the MDL either adjusted or support		Х				2	
S11	OI	Proficiency test reports							
			ceptable on the applicable proficiency tests or	х					
		evaluation studies?		^				l	
S12	OI	Standards documentation							
		Are all standards used in the analyse	s NIST-traceable or obtained from other	х					
		appropriate source?		^_					
S13	OI	Compound/analyte identification procedures							
		Are the procedures for compound/analyte identification documented?							
S14	OI	Demonstration of analyst competency (DOC)							
		Was DOC conducted consistent with NELAC Chapter 5?							
		Is documentation of the analyst's competency up-to-date and on file?							
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)							
		<u> </u>	the data documentated, verified, and	х					
		validated, where applicable?		^`					
S16	OI	Laboratory standard operating pro							
		Are laboratory SOPs current and on f	Х						



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports											
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012								
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC8540								
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS132, VE812								
ER# ¹	Description	Description										
1	All anomalies are discussed in the case narrative.											
2	1	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.										
3		For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.										
4		ng purposes, the MQL is defined in the SDL is defined in the report as the MI	e report as the RL. The unadjusted MQL/RL is DL.	reported in the method								
		·										
		<u> </u>	<u> </u>									

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

5.1.1

Method Blank Summary

Job Number: TC8540

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%

Method: SW846 8260B

Blank Spike Summary Job Number: TC8540

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8540

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
1030	250	1260	92	1280	100	2	76-118/16
26.7	250	272	98	267	96	2	75-112/12
ND	250	246	98	240	96	2	77-114/12
70.6	750	809	98	794	96	2	75-111/12
	ug/l Q 1030 26.7 ND	ug/l Q ug/l 1030 250 26.7 250 ND 250	ug/l Q ug/l ug/l 1030 250 1260 26.7 250 272 ND 250 246	ug/l Q ug/l ug/l % 1030 250 1260 92 26.7 250 272 98 ND 250 246 98	ug/l Q ug/l ug/l % ug/l 1030 250 1260 92 1280 26.7 250 272 98 267 ND 250 246 98 240	ug/l Q ug/l ug/l % ug/l % 1030 250 1260 92 1280 100 26.7 250 272 98 267 96 ND 250 246 98 240 96	ug/l Q ug/l ug/l % ug/l % RPD 1030 250 1260 92 1280 100 2 26.7 250 272 98 267 96 2 ND 250 246 98 240 96 2

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8540

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8540

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-BS	File ID SS002611.D	DF	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8540

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8540

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample TC8546-1DUP	File ID SS002628.D	DF	Analyzed 05/22/12	By FI	Prep Date	Prep Batch	Analytical Batch GSS132
TC8546-1	SS002627.D		05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8541

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Sample Summary

EarthCon Consultants

Job No:

TC8541

First Quarterly Well Sampling, Parker County, Texas

Sample	Collected			Matr		Client
Number	Date	Time By	Received	Code	Type	Sample ID
TC8541-1	05/12/12	13:30	05/15/12	AQ	Ground Water	WWW20-HUF-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8541

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 5:22:33 PM

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8541. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results
Report of Analysis



Report of Analysis

Client Sample ID: WWW20-HUF-051212

 Lab Sample ID:
 TC8541-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017771.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3	Benzene Toluene	0.00025 U 0.00026 U	0.0010 0.0010	0.00025 0.00026	mg/l mg/l	
100-41-4	Ethylbenzene	0.00025 U	0.0010	0.00025	mg/l	
1330-20-7	Xylene (total)	0.00071 U	0.0030	0.00071	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
CAS No. 1868-53-7	Surrogate Recoveries Dibromofluoromethane	Run# 1 96%	Run# 2	Limits 79-122%		
	8		Run# 2			
1868-53-7	Dibromofluoromethane	96%	Run# 2	79-122%		

 $U = \ Not \ detected \qquad SDL \ - \ Sample \ Detection \ Limit$

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



c

Report of Analysis

Client Sample ID: WWW20-HUF-051212

 Lab Sample ID:
 TC8541-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.357 a	0.0025	0.0015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00327	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



	DEP CONTRACTOR			CHAI	N C)F ($C\mathbf{U}$	JS'	ГО	Dy	Y											PA	\GE		_ OI	F
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	Client / Reporting Information	isine kananaan maan		D		acculest.	com	SMEET				34000	satester	Hama							<u></u>					
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Staffo	rd TX 77477																									SL- Sludge
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Phone i		Client Purchase	Order#		City					State			Zip			the 175							1			SOL - Other Solid
	01-3513 (r(s) Name(s) Phone #	Project Manager			Attentior										1	l", Ÿ				1			1			WP - Wipe FB-Field Blank
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LV I	HEELD DUX 1010 201 240	7000	Colle	ction	<u> </u>		_		Numb	per of p	reserve	d Bott	les		82608	필요		l								
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Accutest Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	₽	HOEN	HNO	H2SO	Ma Ma	MEQ.	NaHSO4	ENCOR	втех	Butane, Ethane, E										LAB USE ONLY
	WWW20-HUF-051212	5/12/12	13:30	KB	W	10	V			Ŧ			Ť		X	V										
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Mark-Ser.	X Standard	Approved By (Accu	dest PMI:/Dale:	en en en facile en la hacazina		Commer	clat "						RRP		15000015-010	(CONTROLL)	TOTAL CONT	ECOLUMBITED	evonence	-j Con	menta	/ Opec	ai ilisuu	CHOI13 I	inosticias	
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157	dala tree day State of the Time	7.12 130	Received By	tie/					Relin 2	ıquish	ed 85	2	ز.	<	, 7	a		Date Ti	me: (15	7/	Receiv	ed By:		2_		
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3			3						4		1							1			4)

☐ Intact ☐ Not intact

Received By: 3 Received By: 5

TC8541: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number:	TC8541	Client: E	ARTHCON		Project:	FIRST QUART	ERLY WEL	L SAMPLI	NG PARKER
Date / Time Received:	5/15/2012		Delivery Method:	F	edEx Airbill #'s:	800040672089			
No. Coolers: 1	Therm ID:	IRGUN5			Temp Adjus	tment Factor:	-0.5		
Cooler Temps (Initial/Ad	justed): #1: (3.3/	2.8)							
Cooler Security	Y or N	3. COC Pres	Y or		Sample Integrity - Docume	entation .		or N	
Custody Seals Present:		Smpl Dates/		m	 Sample labels present on bo 		✓		
2. Custody Seals Intact:	<u>v</u>	ompi Datesi	Time On [P]		Container labeling complete		\checkmark		
Cooler Temperature	Y or N			İ	Sample container label / CC	C agree:	✓		
1. Temp criteria achieved:	Y				Sample Integrity - Conditi	on	<u>Y</u>	or N	
2. Cooler temp verification:	Infared Gu	n		- 1	Sample recvd within HT:		✓		
3. Cooler media:	Ice (Bag)			- 1	All containers accounted for		v		
Quality Control Preserva	atio Y or N	N/A	WTB S	зтв	3. Condition of sample:			ntact	
Trip Blank present / coole	er: 🗹 🗌		•		Sample Integrity - Instruct	tions	Υ	or N	N/A
2. Trip Blank listed on COC					Analysis requested is clear:		<u> </u>		
3. Samples preserved prope	erly:				2. Bottles received for unspec		——————————————————————————————————————		
4. VOCs headspace free:	v				3. Sufficient volume recyd for	analysis:	V		
'		•			4. Compositing instructions of	ear:			✓
					5. Filtering instructions clear:				✓
Comments Trip blank is re	ported in job TC853	5.							***************************************
									ALLAMA
									a.
Accutest Laboratories V:713.271.4700				10165 Harwin					ouston, TX 77036 vw/accutest.com

TC8541: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8541

CSR: Elessa Sommers

Response Date:

5/16/2012

Response: Trip blank is reported in job TC8536.

_

TC8541: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8541

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8541-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8541-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8541-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8541-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8541-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8541-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8

TC8541: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8541 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

Ģ.	R2	Sample identification cross-ref	ference;
	R3	Test reports (analytical data sl	heets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data include	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for	or blank samples;
Ģ	R6	Test reports/summary forms for	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9		its (MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method f	or which the	laboratory does not hold NELAC	C accreditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release	e of this laboratory data package. This laboratory is NELAC accredited under the
			ethods, analytes, and matrices reported in this data package except as noted in
the Exce	ption Report	This data package has been re	eviewed by the laboratory and is complete and technically compliant with the
			ed by the laboratory in the attached exception reports. By my signature below, I
		, , ,	malies, observed by the laboratory as having the potential to affect the quality of
the data,	have been i	dentified by the laboratory in the	Laboratory Review Checklist, and no information or data have been knowingly
withheld.			
Check, i	f applicable	: This laboratory meets an exce	eption under 30 TAC&25.6 and was last inspection by
[]	. applicable	·	
			April 2011. Any findings affecting the data in this laboratory data package are s herein. The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/23/2012

Official Title (printed)

Laboratory Director



Project Name Reviewer N #1 R1 R2	lame: e:	Accutest Gulf Coast L First Quarterly Well Sampling, Parker County, Texas L	AECKLIST: REPORTABLE I RC Date: aboratory Project Number: Prep Batch Number(s): dard conditions of sample acceptability	TC GSS	3/20 8541 132,	VE81	2	
Reviewer N #1 R1	lame: A ² OI	Parker County, Texas L Elessa Sommers P DESCRIPTION CHAIN-OF-CUSTODY (C-O-C): Did samples meet the laboratory's standard upon receipt?	Prep Batch Number(s):	GSS	132,	VE81	2	
#1 R1	A ² OI	DESCRIPTION CHAIN-OF-CUSTODY (C-O-C): Did samples meet the laboratory's standupon receipt?	,				2	
R1	OI	CHAIN-OF-CUSTODY (C-O-C): Did samples meet the laboratory's standupon receipt?	dard conditions of sample acceptability	YES	NO		_	
		Did samples meet the laboratory's standupon receipt?	dard conditions of sample acceptability			NA3	NR⁴	ER#5
R2	Ol	Did samples meet the laboratory's standupon receipt?	dard conditions of sample acceptability					
R2	OI	Were all departures from standard cond		х				
R2	OI	Were all departures from standard cond	Х					
		Sample and quality control (QC) iden	ntification					
		Are all field sample ID numbers cross-re	referenced to the laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-refe	erenced to the corresponding QC data?	Х				
R3	OI	Test reports						
		Were samples prepared and analyzed	within holding times?	Х				
			Il other raw values bracketed by calibration	Х				
		Were calculations checked by a peer or	r supervisor?	Х				
		Were all analyte identifications checked		Х				
		Were sample detection limits reported f		Х			İ	
			amples reported on a dry weight basis?			Х		
		Were % moisture (or solids) reported for				Х		
		Were bulk soils/solids samples for vola	tile analysis extracted with methanol per			Х		
		SW846 Method 5035?				۸		
		If required for the project, are TIC's repo	orted?			Χ		
R4	0	Surrogate recovery data						
		Were surrogates added prior to extraction	ion?	Х				
			Ill samples within the laboratory QC limits?	Х				
R5	OI	Test reports/summary forms for blar	nk samples					
		Were appropriate type(s) of blanks ana		Х				
		Were blanks analyzed at the appropriat		Х				
		Were method blanks taken through the		l x				
		preparation and, if applicable, cleanup	procedures?					
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х				
R6	OI	Laboratory control samples (LCS):						
		Were all COCs included in the LCS?		X				
		cleanup steps?	e analytical procedure, including prep and	Х				
		Were LCSs analyzed at required freque		Х				
		Were LCS (and LCSD, if applicable) %		Х				
			ata document the laboratory's capability to	l x				2
		detect the COCs at the MDL used to ca	alculate the SDLs?					
<u> </u>		Was the LCSD RPD within QC limits?			Щ	Χ		
R7	OI	Matrix spike (MS) and matrix spike d		.,				
		Were the project/method specified anal		X				
		Were MS/MSD analyzed at the appropri		X				
		Were MS (and MSD, if applicable) %Rs	•	L .	Х			1
⊢ − +	6.	Were the MS/MSD RPDs within laborate	itory QC limits?	X				
R8	OI	Analytical duplicate data						
		Were appropriate analytical duplicates		X	$\vdash \vdash$			
		Were analytical duplicates analyzed at		X				
L		Were RPDs or relative standard deviati	ions within the laboratory QC limits?		Χ			1
R9	OI	Method quantitation limits (MQLs):	in about a district the second of the second of the	.,				
			included in the laboratory data package?	X				
			ntration of the lowest non-zero calibration	X				
D40	<u> </u>	Are unadjusted MQLs and DCSs includ	ded in the laboratory data package?		Х			3
R10	OI	Other problems/anomalies	aid anditions noted in this LDC and TDC	V			-	
			cial conditions noted in this LRC and ER?	X	$\vdash \vdash$			
			gy used to lower the SDL to minimize the	X	\vdash			
		Is the laboratory NELAC-accredited und Program for the analytes, matrices, and data package?	der the Texas Laboratory Accreditation I methods associated with this laboratory	x				



Laboratory Name:		Accutest Gulf Coast	LRC Date:	5/2	3/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa	J, Pa Laboratory Project Number:		B541			
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	32,	VE81	2	
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?						
		Were percent RSDs or correlation co		Х				
		Was the number of standards recommended in the method used for all analytes?		Х				
			ne lowest and highest standard used to	l x l				
		calculate the curve?						
		Are ICAL data available for all instrum		Х				
			verified using an appropriate second source	x				
		standard?						
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each	,	Х				
	_		e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Х</th><th></th><th></th></mdl?<>			Х		
S3	0	Mass spectral tuning			_			
		Was the appropriate compound for the		Х				
		Were ion abundance data within the	method-required QC limits?	Х	_			
S4	0	Internal standards (IS)		V 1				
- 05			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		, , , , , , , , , , , , , , , , , , , ,	matograms, spectral data) reviewed by an	Х				
		analyst?	togrations flagged on the row date?	X	_			
	0	Were data associated with manual in Dual column confirmation	tegrations hagged on the raw data?	^				
S6	-	Did dual column confirmation results	most the method required OC2			Х		
S7	0	Tentatively identified compounds (^		
31			s spectra and TIC data subject to appropriate					
		checks?	is specific and Tio data subject to appropriate			Χ		
S8	1	Interference Check Sample (ICS) r	esults					
	·	Were percent recoveries within metho				Х		
S9	ı	· · · · · · · · · · · · · · · · · · ·	kes, and method of standard additions					
	-		, and the linearity within the QC limits					
		specified in the method?	•			Х		
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support	ed by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports						
		Was the laboratory's performance ac-	ceptable on the applicable proficiency tests or	х				
		evaluation studies?		^				
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	l x l				
		appropriate source? Compound/analyte identification procedures		^				
S13	OI							
	L	Are the procedures for compound/an	,	Х				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with	· · · · · · · · · · · · · · · · · · ·	Х	_			
		Is documentation of the analyst's competency up-to-date and on file?		Х				
S15	OI		ion for methods (NELAC Chapter 5)					
		· ·	the data documentated, verified, and	x				
		validated, where applicable?	. (000.)					
S16	OI	Laboratory standard operating pro		I				
Are laboratory SOPs current and on file for each method performed?			Х					



	LABOR	RATORY REVIEW O	CHECKLIST (continued): E	xception Reports	
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012	
Project Na	me:	First Quarterly Well Sam	pling, Pa Laboratory Project Number:	TC8541	
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS132, VE812	
ER# ¹	Description	on			
1	All anomal	ies are discussed in the case	narrative.		
2		atory does not perform DCS a e values in the Texas TRRP F	nalysis for Method RSKSOP-147/175. The PCL tables.	compounds reported are not listed or	
3		ng purposes, the method blan n the laboratory data package.	k represents the unadjusted MQL. The DC	S is on file in the laboratory and is not	
4		ng purposes, the MQL is defined in the report a	ned in the report as the RL. The unadjusted as the MDL.	MQL/RL is reported in the method	

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

()

Method Blank Summary

Job Number: TC8541

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

TC8541-1

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8541

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

TC8541-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8541

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

TC8541-1

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8541

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8541

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS132-BS	File ID SS002611.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8541

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC85 ug/l	41-1 Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b		21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U		57.4	46.1	80	60-140
74-84-0	Ethane	3.27		43.3	42.8	91	60-140
74-98-6	Propane	1.5 U		60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U		72.5	64.2	88	60-140
106-97-8	Butane	1.5 U		76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8541

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8546-1DUP	SS002628.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8546-1	SS002627.D	1	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/23/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8542

Sampling Date: 05/13/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Section 6: GC Volatiles - QC Data Summaries	
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6.2: Blank Spike Summary	
6.3: Matrix Spike Summary	
6.4: Duplicate Summary	



Sample Summary

EarthCon Consultants

Job No: TC8542

First Quarterly Well Sampling, Parker County, Texas

Sample Collected				Matr	ix	Client	
Number	Date	Time By	Received	Code	Type	Sample ID	
TC8542-1	05/13/12	18:40	05/15/12	AQ	Ground Water	WWW15-HUR-051312	





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8542

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/23/2012 5:44:07 PM

1 Sample was collected on 05/13/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8542. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW15-HUR-051312

 Lab Sample ID:
 TC8542-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017772.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	94% 100% 99% 101%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW15-HUR-051312

 Lab Sample ID:
 TC8542-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002620.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002621.D	10	05/22/12	FI	n/a	n/a	GSS132

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	1.44 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.136	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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	ALL E				

CHAIN OF CUSTODY

		OF
The second secon	Order Control #	
Laboristorias 10165 Harwin Dr, Ste 150 Houston, TX 77036	est Job #	1 CB542
WW.acculest.com		1 - 0 0 1 -
Client / Reporting Information Project Information Requested Ana	alyses	Matrix Codes
Company Name		
EarthCon Consultants, Inc. First Quarterly Well Sampling, Parker County, Texas 5 5 5 5 5 5		DW - Drinking Water GW - Ground Water
4800 Sugar Grove Blvd., Suite 390 Billing Information (if different from Report to)		WW - Water
City State Zip City State Company Name		SW - Surface Water SO - Soil
Stafford TX 77477 3 7 7		SL- Sludge SED-Sediment
Gabriela Floreslovo		OI - Oil LIQ - Olher Liquid
Phone # Fax # Cliem Purchase Order # City State Zip		AIR - Air SOL - Olher Solid
281-201-3513		WP - Wipe FB-Field Blank
EarthCon Consultants, Inc. First Quarterly Well Sampling, Parker County, Texas Street Address 4800 Sugar Grove Blvd., Suite 390 City State Company Name Company Name Company Name Street Address Street Address Street Company Name Company Name Company Name Street Address Street Address Street Address Street County, Texas Street Address Company Name Company Name Street Address Str		, a , ioio cadrik
Collection Number of preserved Bottles St. Co. 2		
Activities Field ID / Point of Collection Date Turne Sampled By Matrix bodies Q Q Q Q Q Q Q Q Q		
		LAB USE ONLY
1. NWW15-HUR-051312 5/13/12 /840 KB W 6 K		
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		\
	/ Special Instruct	tions
X Standard Approved By (Acculest PM): / Date: Commercial "A" (Level 1) X TRRP S Day RUSH Commercial "B" (Level 2) EDD Format		
5 Day RUSH Commercial *B* (Level 2)		
3 Day RUSH REDT1 (Lavel 3+4)		
2 Day RUSH Commercial *C*		
1 Day EMERGENCY Commercial 'A" = Results Only Emergency & Rush T/A data available VIA Lablink Commercial 'B" = Results + QC Summary		
Commercial "C" = Results + QC & Surrogate Summary	pagen normalisasini	
Sample Custody must be documented below each time samples change possession, including courier delivery. Received By FL J B Re	gally:	
The state of the s	\searrow	
Ralinquished by Simple: Date Time: Received By: Relinquished By: Date Time: Received By: Objet Time: Received By: 4 4 4	red By:	<i>[</i>
Relinquished by: Date Time: Received By: Custority Seal # Indiact Preserved where applicable 5 Indiact Preserved where applicable	On lear	Cooler Territor

TC8542: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number:	TC8542	Client:	EARTHCON		Project:	FIRST QUART	ERLY WELL	SAMPLII	NG PARKE	.R
Date / Time Received:	5/15/2012		Delivery Method:	FedEx	Airbill #'s:	800040672089				
No. Coolers: 1	Therm ID:	IRGUN5			Temp Adjus	tment Factor:	-0.5			
Cooler Temps (Initial/A	djusted): #1: (3.3/	2.8)								
Cooler Security 1. Custody Seals Present:		3. COC Pro		1. Sample I	egrity - Docume	ottles:	V	or N		
Custody Seals Intact: Cooler Temperature	<u>Y or N</u>	•	William Oil V		r labeling complete container label / CC		V V			
 Temp criteria achieved: Cooler temp verification Cooler media: 	1227	ın		1. Sample r	tegrity - Conditi ecvd within HT: ners accounted for		<u>Y</u>	or N		
Quality Control Preser			WTB STB	- I	,		ln	ntact		
 Trip Blank present / coc Trip Blank listed on CO 				I ,	requested is clear:		<u>Y</u>	or N	N/A	
3. Samples preserved pro	perly: 🔽 🗌			2. Bottles-r	eceived for unspec	ified-tests	————	V		
VOCs headspace free:				4. Compos	t volume recvd for iting instructions cl instructions clear:	-			☑	
Comments Trip blank is r	reported in job TC853			J. Filtering			<u> </u>		<u>Y</u>	
	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,									
Accutest Laboratories V:713.271.4700				5 Harwin Drive 713.271.4770					ouston, TX 770: ww/accutest.com	

TC8542: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8542

CSR: Elessa Sommers

Response Date:

5/16/2012

Response: Trip blank is reported in job TC8536.

4

TC8542: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8542

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:			Therm ID	Initial Temp	Therm CF	Corrected Temp			
1	TC8542-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8542-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8542-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8542-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8542-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8542-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3,3	-0.5	2.8

TC8542: Chain of Custody

Page 4 of 4



Appendix A **Laboratory Data Package Cover Page**

This signature page, the laboratory review checklist, and the following reportable data:

TC8542 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

į.	R1	Field chain-of-custody docume	entation;
į.	R2	Sample identification cross-re	
į.	R3	Test reports (analytical data sl	neets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
Ō	R4	Surrogate recovery data include	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
Ō	R5	Test reports/summary forms for	or blank samples;
Ō	R6	Test reports/summary forms for	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
Ō	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
Ō	R8	Laboratory analytical duplicate	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ģ	R9	List of method quantitation lim	its (MQLs) and detectability check sample results for each analyte for each
Ō	R10	Other problems or anomalies.	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
metnoa t	or wnich the	laboratory does not hold NELAC	C accreditation under the Texas Laboratory Accreditation Program.
Texas La the Excel requirem affirm to the data, withheld.	boratory Acception Report ents of the nathe best of many have been i	creditation Program for all the money. This data package has been renethods used, except where not many knowledge, all problems/anon dentified by the laboratory in the	e of this laboratory data package. This laboratory is NELAC accredited under the ethods, analytes, and matrices reported in this data package except as noted in eviewed by the laboratory and is complete and technically compliant with the ed by the laboratory in the attached exception reports. By my signature below, I nalies, observed by the laboratory as having the potential to affect the quality of Laboratory Review Checklist, and no information or data have been knowingly
	f applicable	· ·	ption under 30 TAC&25.6 and was last inspection by
[]		noted in the Exception Report	April 2011. Any findings affecting the data in this laboratory data package are s herein. The official signing the cover page of the report in which these data are ng this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

5/23/2012



	L	ABORATORY REVIEW CH	HECKLIST: REPORTABLE	DAT	Ά			
Laboratory	/ Name:	Accutest Gulf Coast L	RC Date:	5/2	3/20	12		
		First Constants Well Constant						
Project Na	mo:	First Quarterly Well Sampling, Parker County, Texas	aboratory Project Number:	т.	8542	,		
Reviewer	Name:		Prep Batch Number(s):	_		VE81	2	
#1	I A ²	DESCRIPTION 1	Top Bater Number(3).					ER#
R1	OI	CHAIN-OF-CUSTODY (C-O-C):		1				
		Did samples meet the laboratory's stand	dard conditions of sample acceptability	V			П	
		upon receipt?		Х				
		<u> </u>	ditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) iden						
			eferenced to the laboratory ID numbers?	X				
		•	erenced to the corresponding QC data?	X				
R3	OI	Test reports						
		Were samples prepared and analyzed		X				
			Il other raw values bracketed by calibration	X				11
		standards? Were calculations checked by a peer or	r cuponicor?	 	Н			
		Were all analyte identifications checked	•	X	H			
		Were sample detection limits reported f		l ^	H			
			amples reported on a dry weight basis?	$+^{\sim}$	\vdash	Х	-+	
		Were % moisture (or solids) reported for				X		
		Were bulk soils/solids samples for vola	tile analysis extracted with methanol per			Х		
	SW846 Method 5035?							
		If required for the project, are TIC's repo	orted?		Ш	Х		
R4	- Jan 1 3 1 7						_	
		Were surrogates added prior to extraction	X					
R5	OI	Were surrogate percent recoveries in a Test reports/summary forms for blar	X	ш				
	UI.	Were appropriate type(s) of blanks ana		Х				
		Were blanks analyzed at the appropriate	X					
		Were method blanks taken through the		Н				
		preparation and, if applicable, cleanup		X				ii.
		Were blank concentrations <mql?< td=""><td>Х</td><td></td><td></td><td></td><td></td></mql?<>	Х					
R6	OI	Laboratory control samples (LCS):						
		Were all COCs included in the LCS?		X				
		_	e analytical procedure, including prep and	X				ii.
		cleanup steps?	00000	- V	Н		_	
		Were LCSs analyzed at required freque Were LCS (and LCSD, if applicable) %	•	X				
			ata document the laboratory's capability to					
		detect the COCs at the MDL used to ca		X				2
		Was the LCSD RPD within QC limits?				Х		
R7	OI	Matrix spike (MS) and matrix spike d	luplicate (MSD) data					
		Were the project/method specified anal		Х				
		Were MS/MSD analyzed at the appropri		Х				
		Were MS (and MSD, if applicable) %Rs	<u> </u>	L.,	Х			1
	<u> </u>	Were the MS/MSD RPDs within laborate	tory QC limits?	X	Щ			
R8	OI	Analytical duplicate data	and mad for each made 0	V		-		
		Were appropriate analytical duplicates		X	H			
		Were analytical duplicates analyzed at Were RPDs or relative standard deviati		X				1
R9	OI	Method quantitation limits (MQLs):	within the laboratory QC IIIIIIIS!		Х			
-1/3	 "		included in the laboratory data package?	Х				
			ntration of the lowest non-zero calibration	X	Н			
		Are unadjusted MQLs and DCSs include	T	Х			3	
R10	OI	Other problems/anomalies	, ,					
			cial conditions noted in this LRC and ER?	Х				
		Was applicable and available technolog	gy used to lower the SDL to minimize the	Х				
		Is the laboratory NELAC-accredited und]	Ţ	I	
			methods associated with this laboratory	X				1
	1	data package?		1	1			i



Laboratory	Name:	Accutest Gulf Coast LRC Date:	5/2	3/20	12		
Project Na		First Quarterly Well Sampling, Pa Laboratory Project Number:	TC	8542	2		
Reviewer		Elessa Sommers Prep Batch Number(s):	GSS.			12	
#1	A ²	DESCRIPTION					ER# ⁵
S1	OI	Initial calibration (ICAL)	1.20				
	<u> </u>	Were response factors and/or relative response factors for each analyte within QC					
		limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	Х				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to	1				
		calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source	<u> </u>				
		standard?	Х				
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method-required frequency?	Х				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB <mdl?< td=""><td>T .</td><td></td><td>Х</td><td></td><td></td></mdl?<>	T .		Х		
S3	0	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	Х				
		Were ion abundance data within the method-required QC limits?	X				
S4	0	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	Х		I		
S5	OI	Raw data (NELAC Section 5.5.10)					
	<u> </u>	Were the raw data (for example, chromatograms, spectral data) reviewed by an			l		
		analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	Х				
S6	0						
		Dual column confirmation Did dual column confirmation results meet the method-required QC?			X	П	
S7	0	Tentatively identified compounds (TICs):					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate			I		
		checks?			Х		
S8	1	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			ΙX		
S9	ı	Serial dilutions, post digestion spikes, and method of standard additions					
	<u> </u>	Were percent differences, recoveries, and the linearity within the QC limits					
		specified in the method?			Х		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	Х				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				2
S11	OI	Proficiency test reports					_
	T	Was the laboratory's performance acceptable on the applicable proficiency tests or					
		evaluation studies?	Х				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other					
		appropriate source?	Х				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	Х				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	Х		Ī		
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
	1	Are all the methods used to generate the data documentated, verified, and			Ī		
		validated, where applicable?	X		1		
S16	OI	Laboratory standard operating procedures (SOPs)					
	<u> </u>	Are laboratory SOPs current and on file for each method performed?	Х				
		,,,			1		



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports						
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/23/2012						
Project Na	me:	First Quarterly Well Sampling, P	Laboratory Project Number:	TC8542						
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS132, VE812						
ER# ¹	Description									
1	All anomalies are discussed in the case narrative.									
2	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.									
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.									
4		ng purposes, the MQL is defined in the SDL is defined in the report as the M	ne report as the RL. The unadjusted MQL/RL is IDL.	reported in the method						
			<u> </u>							

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary

Job Number: TC8542

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8542

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample VE812-BS	File ID E0017764.D	DF	Analyzed 05/17/12	By MH	Prep Date n/a	Prep Batch n/a	Analytical Batch VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8542

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12
CACNO	Crymagata Dagaranias	MC	MCD	TC	10215 7	I imita			

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-	0 1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8542

PESTXST EarthCon Consultants **Account:**

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8542

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GSS132-BS	SS002611.D	1	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8542

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8542

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample TC8546-1DUP TC8546-1	File ID SS002628.D SS002627.D	Analyzed 05/22/12 05/22/12	By FI FI	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS132 GSS132
1 000 10 1	2200202712	00, 22, 12				3.5.10 .2

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8543

Sampling Date: 05/13/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

Job No:

TC8543

First Quarterly Well Sampling, Parker County, Texas

Sample	Collected		Matrix		ix	Client	
Number	Date	Time By	Received	Code	Туре	Sample ID	
TC8543-1	05/13/12	17:30	05/15/12	AQ	Ground Water	WWW14A-HUR-051312	





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8543

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 9:47:45 AM

1 Sample was collected on 05/13/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8543. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW14A-HUR-051312

 Lab Sample ID:
 TC8543-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017773.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	94% 98% 94% 99%		79-122% 75-121% 87-119%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW14A-HUR-051312

 Lab Sample ID:
 TC8543-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002622.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002623.D	10	05/22/12	FI	n/a	n/a	GSS132

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	1.15 ^a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0963	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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Company Name	E		D-10											a	1									
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4800 Sugar Grove Blvd., Suite 390				Billing In	formati	on (ii	differ	ent fror	n Rep	ort to)				ž										WW - Water SW - Surface Water
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MAIACEN DUNION 231-24	0-5200	Collec	tion	L		1		Number	of presi	erved B	otles		82608	E E	1]		
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Sample # Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of battles	豆	NaOH ZANaO	HN03 HZSO4	NONE	MEOH	ם	ENCORE	BTE)	B P								1		LAB USE ONLY
1. NWW14A-HUR-05131Z	5/13/12	1730	KB	W	10	V					П		X	18										
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Turnaround Time (Business days)						1_1	Data [Delivera	able in	ıforma	LLL		Salenti Salenti	Continu				Com	ments .	Specia	l Instruc	tions		
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5 Day RUSH					ammer			vel 2)		_		Form	at		-									
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2 Day RUSH					ommer																			
1 Day EMERGENCY	1 Day EMERGENCY							ercial "A			-	_												
Emergency & Rush T/A data available VIA Lablink								ercial "B ercial "C					y gate Sur	nmary					-					
Sample Custody must be document					ow eac			nples o	hang	e pos					r deliv		4							
Traditional Indiana In	412/30	Received But	lex					Relinqu 2	ushed i	is J	e	5	5~	-1		Date T	11	12	Receivi 2	in na.		\supset		
Relinquished by Sampler: Date Time		Received By:	7					Retinqu	Ished I	By:						Date T	me:		Receive	d By:				
Relinquished by: Date Tim	1:	Received By:						4 Custod	y Seati	#		Е	Intact		Preser	ed whe	re applica	able	14		On leg		Cooler -	Temp. 2

TC8543: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Accutest Job Number:	1 C8543	Client:	EARTHCON		Project:	FIRST QUART	EKLY WEI	L SAMPLI	NG PAR	KER
Date / Time Received:	5/15/2012		Delivery Method:		FedEx Airbill #'s:	800040672089				
No. Coolers: 1	Therm ID:	IRGUN5			Temp Adjus	stment Factor:	-0.5			
Cooler Temps (Initial/Ad	justed): #1: (3.3	<u>/2.8)</u>								
Cooler Security	Y or N			or N	Sample Integrity - Docume	entation	<u>Y</u>	or N		
1. Custody Seals Present:		3. COC P	resent: 🔽		Sample labels present on b		V			
2. Custody Seals Intact:	4.	Simple Date	s/ fille OK	Ш	2. Container labeling complete		V			
Cooler Temperature	Y or N	<u>_</u>			3. Sample container label / C0	OC agree:	~			
Temp criteria achieved:					Sample Integrity - Condit	<u>ion</u>	<u>Y</u>	or N		
Cooler temp verification: Cooler media:	Infared G				Sample recvd within HT:		V			
					2. All containers accounted for	r.	~			
Quality Control Preserva				STB_	Condition of sample:			ntact		
Trip Blank present / coole	, , , , , , , , , , , , , , , , , , ,		V		Sample Integrity - Instruc	<u>tions</u>	<u>Y</u>	or N	N/A	
2. Trip Blank listed on COC					Analysis requested is clear		✓			
3. Samples preserved prope					Bottles received for unspec			V		
4. VOCs headspace free:					Sufficient volume recvd for	•	V			
					Compositing instructions c				~	
					5. Filtering instructions clear:				V	
Comments Trip blank is re	ported in job TC85	36.								
Accutest Laboratories V:713.271.4700					rwin Drive 171.4770				ouston, TX ww/accutest	

TC8543: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8543

CSR: Elessa Sommers Response Date: 5/16/2012

Response: Trip blank is reported in job TC8536.



TC8543: Chain of Custody Page 3 of 4







Sample Receipt Log

Job #: TC8543

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8543-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8543-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8543-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8543-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8543-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8543-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8543: Chain of Custody Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8543 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

Ģ.	R2	Sample identification cross-	reference;
	R3	Test reports (analytical data	sheets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
ū.	R4	Surrogate recovery data incl	luding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms	for blank samples;
	R6	Test reports/summary forms	s for laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
ū.	R7	Test reports for project matri	ix spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
□	R8	Laboratory analytical duplica	ate (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
□	R9	List of method quantitation li	imits (MQLs) and detectability check sample results for each analyte for each
D	R10	Other problems or anomalie	S.
-		·	
The Exce	ption Repo	rt for each "No" or "Not Review	red (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	r which the	laboratory does not hold NEL	AC accreditation under the Texas Laboratory Accreditation Program.
		•	,
Release	Statement	I am responsible for the relea	ase of this laboratory data package. This laboratory is NELAC accredited under the
			methods, analytes, and matrices reported in this data package except as noted in
			reviewed by the laboratory and is complete and technically compliant with the
		. •	oted by the laboratory in the attached exception reports. By my signature below, I
			omalies, observed by the laboratory as having the potential to affect the quality of
			he Laboratory Review Checklist, and no information or data have been knowingly
withheld.	nave been	dentified by the laboratory in the	le Laboratory Neview Checklist, and no information of data have been knowingly
witi ii leiu.			
Check, if	applicable	: This laboratory meets an ex	ception under 30 TAC&25.6 and was last inspection by
[]		[X] TCEQ or [] o	on April 2011. Any findings affecting the data in this laboratory data package are
			orts herein. The official signing the cover page of the report in which these data are
			asing this data package and is by signature affirming the above release statement
		acca to reoperiore for relea	sing and data pastage and to by digitation animing the above follows statement

Official Title (printed)

Laboratory Director

Date

5/24/2012



	L	ABORATORY REVIEW (
Laboratory	/ Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12			
		First Overtants Wall Compline							
Project Na	mo:	First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	т.	8543	.			
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	+		VE81	2		
#1	I A ²	DESCRIPTION	Trop Bator Hambor(o).					ER#	
R1	OI	CHAIN-OF-CUSTODY (C-O-C):							
		Did samples meet the laboratory's sta	andard conditions of sample acceptability	X					
		upon receipt?							
			onditions described in an exception report?	X					
R2	OI	Sample and quality control (QC) id							
			s-referenced to the laboratory ID numbers?	X					
		*	referenced to the corresponding QC data?	X					
R3	OI	Test reports	- L. St. S. L. L. P C O				-		
		Were samples prepared and analyze		X					
		standards?	e all other raw values bracketed by calibration	X					
		Were calculations checked by a peer	r or supervisor?	X			-		
		Were all analyte identifications check	•	X			\dashv		
		Were sample detection limits reporte		X					
			t samples reported on a dry weight basis?			Х			
		Were % moisture (or solids) reported			Χ				
		·	platile analysis extracted with methanol per			х			
		SW846 Method 5035?	-						
R4	0	If required for the project, are TIC's re Surrogate recovery data	еропеа?			Χ			
K4	 	Were surrogates added prior to extra	action?	Х					
			a all samples within the laboratory QC limits?	TX					
R5	OI	Test reports/summary forms for b	<u> </u>						
		Were appropriate type(s) of blanks a	•	Х			П		
		Were blanks analyzed at the appropri	Х						
		Were method blanks taken through t	he entire analytical process, including	X					
		preparation and, if applicable, cleanu	ıp procedures?						
	<u> </u>	Were blank concentrations <mql?< td=""><td></td><td>X</td><td></td><td></td><td></td><td></td></mql?<>		X					
R6	OI	Laboratory control samples (LCS) Were all COCs included in the LCS?		V					
			tire analytical procedure, including prep and	X					
		cleanup steps?	the analytical procedure, including prop and	X					
		Were LCSs analyzed at required free	quency?	X					
			%Rs within the laboratory QC limits?	X					
		Does the detectablility check sample	data document the laboratory's capability to	X				2	
		detect the COCs at the MDL used to							
		Was the LCSD RPD within QC limits				Х			
R7	OI	Matrix spike (MS) and matrix spike		V					
		Were the project/method specified an Were MS/MSD analyzed at the appro	nalytes included in the MS and MSD?	X					
		Were MS (and MSD, if applicable) %		+^	Х			1	
		Were the MS/MSD RPDs within labor	· · · · · · · · · · · · · · · · · · ·	X	<u> </u>				
R8	OI	Analytical duplicate data	, , , , , , , , , , , , , , , , , , , ,	Ĥ					
	†	Were appropriate analytical duplicate	es analyzed for each matrix?	Х					
		Were analytical duplicates analyzed		Х					
			iations within the laboratory QC limits?		Х			1	
R9	OI	Method quantitation limits (MQLs)							
			te included in the laboratory data package?	X					
			centration of the lowest non-zero calibration	X			_		
D40	-		luded in the laboratory data package?		Х			3	
R10	OI	Other problems/anomalies Are all known problems/anomalies/sr	pecial conditions noted in this LRC and ER?	X					
			pecial conditions noted in this ERC and ER?	\ X					
	 		under the Texas Laboratory Accreditation	+^			-		
			and methods associated with this laboratory	X					
	1	1 3. a a. a. a. a. a. a. a. a. a. a. a	and accordance with the laboratory	1 ^	1	i			



Laboratory	Name:	Accutest Gulf Coast LRC Date:	5/2	5/24/2012						
Project Na		First Quarterly Well Sampling, Pa Laboratory Project Number:	_	854						
Reviewer	Name:	Elessa Sommers Prep Batch Number(s):	_		VE8	12				
#1	A ²	DESCRIPTION The parameter of the paramet				NR⁴ ER				
S1	OI	Initial calibration (ICAL)								
		Were response factors and/or relative response factors for each analyte within QC			1					
		limits?	X							
		Were percent RSDs or correlation coefficient criteria met?	Х							
		Was the number of standards recommended in the method used for all analytes?	Х							
		Were all points generated between the lowest and highest standard used to	X							
		calculate the curve?	X							
		Are ICAL data available for all instruments used?	Х							
		Has the initial calibration curve been verified using an appropriate second source	X							
		standard?	_ ^							
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and continuing								
		Was the CCV analyzed at the method-required frequency?	X							
		Were percent differences for each analyte within the method-required QC limits?	Х							
		Was the ICAL curve verified for each analyte?	X							
		Was the absolute value of the analyte concentration in the inorganic CCB <mdl?< td=""><td></td><td></td><td>X</td><td></td></mdl?<>			X					
S3	0	Mass spectral tuning								
		Was the appropriate compound for the method used for tuning?	Х							
		Were ion abundance data within the method-required QC limits?	X							
S4	0	Internal standards (IS)								
		Were IS area counts and retention times within the method-required QC limits?	X							
S5	OI	Raw data (NELAC Section 5.5.10)								
		Were the raw data (for example, chromatograms, spectral data) reviewed by an	X							
		analyst?	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \							
		Were data associated with manual integrations flagged on the raw data?	X							
S6	0	Dual column confirmation			l v					
S7	0	Did dual column confirmation results meet the method-required QC? Tentatively identified compounds (TICs):			Х					
- 3/	-	If TICs were requested, were the mass spectra and TIC data subject to appropriate								
		checks?			Х					
S8		Interference Check Sample (ICS) results								
	<u> </u>	Were percent recoveries within method QC limits?			ΙX					
S9		Serial dilutions, post digestion spikes, and method of standard additions			_^					
	<u> </u>	Were percent differences, recoveries, and the linearity within the QC limits								
		specified in the method?			Х					
S10	OI	Method detection limit (MDL) studies								
		Was a MDL study performed for each reported analyte?	Х							
		Is the MDL either adjusted or supported by the analysis of DCSs?	Х			2				
S11	OI	Proficiency test reports								
		Was the laboratory's performance acceptable on the applicable proficiency tests or	V							
	<u></u>	evaluation studies?	Х		L					
S12	OI	Standards documentation								
		Are all standards used in the analyses NIST-traceable or obtained from other	Х							
		appropriate source?	^	L						
S13	OI	Compound/analyte identification procedures								
		Are the procedures for compound/analyte identification documented?	Х							
S14	OI	Demonstration of analyst competency (DOC)								
		Was DOC conducted consistent with NELAC Chapter 5?	Х							
		Is documentation of the analyst's competency up-to-date and on file?	Х							
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)								
		Are all the methods used to generate the data documentated, verified, and	X							
		validated, where applicable?	_^							
S16	OI	Laboratory standard operating procedures (SOPs)								
		Are laboratory SOPs current and on file for each method performed?	X							



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports											
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/24/2012								
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC8543								
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s): GSS132, VE812									
ER# ¹	Description	n										
1	All anomali	es are discussed in the case narrative).									
2	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.											
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.											
4		ng purposes, the MQL is defined in the SDL is defined in the report as the MI	e report as the RL. The unadjusted MQL/RL is DL.	reported in the method								
		·										
		<u> </u>	<u> </u>									

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8543

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8543

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8543

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12
CACNO	Cumpagata Dagayawing	MC	MCD	TC	10215 7	I imita			

CAS No. Surrogate Recoveries		MS	MSD	TC8215-7	Limits	
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%	
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%	
2037-26-5	Toluene-D8	98%	97%	96%	87-119%	
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%	





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8543

PESTXST EarthCon Consultants **Account:**

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8543

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-BS	File ID SS002611.D	DF	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8543

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8543

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8546-1DUP	SS002628.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8546-1	SS002627.D	1	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30



05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8544

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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6.4: Duplicate Summary	



Sample Summary

EarthCon Consultants

Job No:

TC8544

First Quarterly Well Sampling, Parker County, Texas

Sample	Collected		Matri	ix	Client	
Number	Date	Time By	Received	Code	Type	Sample ID
TC8544-1	05/12/12	14:50	05/15/12	AQ	Ground Water	WWW05-WEL-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8544

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 9:56:57 AM

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8544. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW05-WEL-051212

 Lab Sample ID:
 TC8544-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017774.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	90% 97% 97% 96%		79-122% 75-121% 87-119% 80-133%		

 $U = \ Not \ detected \qquad SDL \ - \ Sample \ Detection \ Limit$

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: WWW05-WEL-051212

 Lab Sample ID:
 TC8544-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002624.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2							

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.200	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00655	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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CHAIN OF CUSTODY

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Compar	y Name															ģ.												
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1		alleer					Princes:	10.000.000	race control							Me			1							GW - Ground Water WW - Water		
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Gabrie	la Floresiovo													9										LIQ - Other Liquid				
Phone #		Client Purchase	Order #		City					State			Zip			15 E			1							AIR - Air SOL - Other Solid		
281-20																<u> </u>			1	1						WP - Wipe FB-Field Blank		
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Accutest Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	豆	ZANAC	CONH	H2SO4	DI Wate	MEOH TSP	NaHSO	OTHER	BTEX 8260B	Butane, Ethane, Ethe Propane by RSK-175										LAB USE ONLY		
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TC8544: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Accutest Job Number: To	C8544	Client:	EARTHCON		P	roject:	FIRST QUART	ERLY WE	LL SAMPLII	NG PARKER
Date / Time Received: 5/	15/2012		Delivery Method:	******	FedEx Air	bill #'s:	800040672089			
No. Coolers: 1	Therm ID:	IRGUN5			Tem	p Adjus	tment Factor:	-0.5		
Cooler Temps (Initial/Adju	ısted): #1: (3.3/2	2.8)		************						
Cooler Security	Y or N		Y or	N	Sample Integrity - I	Docume	entation	Υ	or N	
Custody Seals Present:		3. COC P	resent:		Sample labels pres			~		
2. Custody Seals Intact:	✓	Smpl Date	s/Time OK		2. Container labeling			✓		
Cooler Temperature	Y or N	-			3. Sample container l	abel / CC	C agree:	\checkmark		
1. Temp criteria achieved:					Sample Integrity -	Conditi	on	<u>Y</u>	or N	
2. Cooler temp verification:	Infared Gu				Sample recvd withi			\checkmark		
3. Cooler media:	Ice (Bag)				2. All containers acco		:	V		
Quality Control Preservat	<u>io Y or N</u>	N/A	WTB	STB	3. Condition of sample	e:			Intact	
1. Trip Blank present / cooler:			V		Sample Integrity -	Instruct	ions	Y	or N	N/A
2. Trip Blank listed on COC:					Analysis requested	l is clear:		V		
3. Samples preserved proper	y. 🔽 🗆		·····		2. Bottles received fo	runspeci	ified tests		7	
4. VOCs headspace free:	v				3. Sufficient volume i	ecvd for	analysis:	\checkmark		
					4. Compositing instru	ictions cl	ear:			✓
					5. Filtering instruction	ns clear:				✓
Comments Trip blank is repo	orted in job TC8536	S .								
Accutest Laboratories V:713.271.4700				10165 Har F: 713.2						uston, TX 77036 w/accutest.com

TC8544: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8544

CSR: Elessa Sommers

Response Date: 5/16/2012

Response: Trip blank is reported in job TC8536.

1

TC8544: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8544

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	На	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8544-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8544-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8544-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8544-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8544-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8544-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8544: Chain of Custody

Page 4 of 4





Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC8544 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

ė	R1	Field chain-of-custody document	tation;
ū.	R2	Sample identification cross-refer	ence;
ū.	R3	Test reports (analytical data shee	ets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data includin	g:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for I	blank samples;
	R6	Test reports/summary forms for I	laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix sp	ike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (i	f applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9		(MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
		,	NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method for	or which the	laboratory does not hold NELAC a	accreditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release of	of this laboratory data package. This laboratory is NELAC accredited under the
Texas Lal	boratory Acc	creditation Program for all the meth	nods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report.	This data package has been review	ewed by the laboratory and is complete and technically compliant with the
requireme	ents of the m	nethods used, except where noted	by the laboratory in the attached exception reports. By my signature below, I
affirm to t	he best of m	y knowledge, all problems/anomal	lies, observed by the laboratory as having the potential to affect the quality of
the data,	have been id	dentified by the laboratory in the La	aboratory Review Checklist, and no information or data have been knowingly
withheld.			
Check, if	applicable	: This laboratory meets an excepti	on under 30 TAC&25.6 and was last inspection by
[]		[X] TCEQ or [] on Ap	oril 2011. Any findings affecting the data in this laboratory data package are
			perein. The official signing the cover page of the report in which these data are
			this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

5/24/2012



	L	ABORATORY REVIEW (CHECKLIST: REPORTABLE	DAT	Ά			
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12		
Project Na		First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	_	8544			
Reviewer		Elessa Sommers	Prep Batch Number(s):			VE81		
#1	A ²	DESCRIPTION		YES	NO	NA³	NR [*]	ER #5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		upon receipt?	andard conditions of sample acceptability	Х				
		Were all departures from standard or	onditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) ic	dentification					
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-	referenced to the corresponding QC data?	Х				
R3	OI	Test reports						
		Were samples prepared and analyze	ed within holding times?	Х				
		Other than those results <mql, td="" were<=""><td>e all other raw values bracketed by calibration</td><td>X</td><td></td><td></td><td></td><td></td></mql,>	e all other raw values bracketed by calibration	X				
		standards?						
		Were calculations checked by a pee		X				
		Were all analyte identifications check		Х				
		Were sample detection limits reporte		X				
			t samples reported on a dry weight basis?	1		Х		
		Were % moisture (or solids) reported				Х		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per				Х		
		SW846 Method 5035? If required for the project, are TIC's re	oportod?	-		Х		—
R4	0	Surrogate recovery data	eported:					
N4		Were surrogates added prior to extra	action?	X				
			n all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for b		<u> </u>				
-10	<u> </u>	Were appropriate type(s) of blanks analyzed?						
		Were blanks analyzed at the approp		X				
			the entire analytical process, including					
		preparation and, if applicable, cleanu		X				
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х				
R6	OI	Laboratory control samples (LCS)	:					
		Were all COCs included in the LCS?	?	Х				
		Was each LCS taken through the en cleanup steps?	tire analytical procedure, including prep and	х				
		Were LCSs analyzed at required free	quency?	X				
			%Rs within the laboratory QC limits?	Х				
			data document the laboratory's capability to	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				
		detect the COCs at the MDL used to	calculate the SDLs?	X				2
		Was the LCSD RPD within QC limits	5?			Χ		
R7	OI	Matrix spike (MS) and matrix spike						
			nalytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appro		X	L.			
		Were MS (and MSD, if applicable) %	<u> </u>	ļ.,	Х			1
		Were the MS/MSD RPDs within labor	pratory QC limits?	X				
R8	OI	Analytical duplicate data						
		Were appropriate analytical duplicate		X				
		Were analytical duplicates analyzed		X	L_			_
	01		iations within the laboratory QC limits?		Х			1
R9	OI	Method quantitation limits (MQLs)	te included in the laboratory data package?	V				
			centration of the lowest non-zero calibration	X		\vdash		
			cluded in the laboratory data package?	+^	Х			3
R10	OI	Other problems/anomalies	nadod in the laboratory data package:					
			pecial conditions noted in this LRC and ER?	X				
			plogy used to lower the SDL to minimize the	^				
			under the Texas Laboratory Accreditation	†^				
			and methods associated with this laboratory	х				



Laboratory Name:		Accutest Gulf Coast	5/24/2012					
Project Na	me:	First Quarterly Well Sampling, Pa Laboratory Project Number:		TC8544				
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS132, VE812				
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?						
		Were percent RSDs or correlation co		Х				
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	l x l				
		calculate the curve?						
		Are ICAL data available for all instrum		Χ				
			verified using an appropriate second source	x				
		standard?						
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	Х				<u> </u>
		Was the ICAL curve verified for each	,	Х				
	_		e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Х</th><th></th><th></th></mdl?<>			Х		
S3	0	Mass spectral tuning			_			
		Was the appropriate compound for the		Х				
		Were ion abundance data within the	method-required QC limits?	Х	_			
S4	0	Internal standards (IS)	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	V 1				
- 05			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		, , , , , , , , , , , , , , , , , , , ,	matograms, spectral data) reviewed by an	Х				
		analyst? Were data associated with manual integrations flagged on the raw data?						<u> </u>
	0	Dual column confirmation	legrations hagged on the raw data?	Х				
S6	-	Did dual column confirmation results meet the method-required QC?				Х		
S7	0	Tentatively identified compounds (TICs):				^		
31		If TICs were requested, were the mas						
		checks?	as spectra and the data subject to appropriate			Χ		
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within method				Х		
S9	ı		kes, and method of standard additions					
	-		, and the linearity within the QC limits					
		specified in the method?	•			Х		l
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports						
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х				
		evaluation studies?		^				
S12	OI	Standards documentation						
		Are all standards used in the analyses NIST-traceable or obtained from other						l
		appropriate source?		Х				
S13	OI	Compound/analyte identification procedures		Х				
	L	Are the procedures for compound/analyte identification documented?						
S14	OI	Demonstration of analyst competency (DOC)		\.				
		Was DOC conducted consistent with	·	Х				<u> </u>
	Is documentation of the analyst's competency up-to-date and on file?			Х				
S15	OI		tion for methods (NELAC Chapter 5)					
		· ·	the data documentated, verified, and	x				
040		validated, where applicable?	and was (CODs)					
S16	OI	Laboratory standard operating pro		V I				
	l	Are laboratory SOPs current and on f	ile for each method performed?	X				1



	LABOR	KATORT REVIEW	CHECKLIST (continued): I				
Laboratory Name:		Accutest Gulf Coast	LRC Date:	5/24/2012			
Project Na	me:	First Quarterly Well San	npling, Pa Laboratory Project Number:	TC8544			
Reviewer Name:		Elessa Sommers	Prep Batch Number(s):	GSS132, VE812			
ER# ¹	ER# ¹ Description						
1	All anomal	ies are discussed in the case	e narrative.				
2		atory does not perform DCS re values in the Texas TRRP	analysis for Method RSKSOP-147/175. The PCL tables.	ne compounds reported are not listed of			
3		ng purposes, the method bla n the laboratory data package	ank represents the unadjusted MQL. The De.	CS is on file in the laboratory and is n			
4		ng purposes, the MQL is def SDL is defined in the report	ined in the report as the RL. The unadjuste as the MDL.	d MQL/RL is reported in the method			
	1						

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary

Job Number: TC8544

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	94% 101% 99% 97%	79-122% 75-121% 87-119% 80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8544

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8544

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12
~ . ~	~	3.50			~~~ -				

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8544

PESTXST EarthCon Consultants **Account:**

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8544

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS132-BS	File ID SS002611.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8544

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC85 ug/l	41-1 Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b		21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U		57.4	46.1	80	60-140
74-84-0	Ethane	3.27		43.3	42.8	91	60-140
74-98-6	Propane	1.5 U		60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U		72.5	64.2	88	60-140
106-97-8	Butane	1.5 U		76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8544

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample TC8546-1DUP	File ID SS002628.D	DF	Analyzed 05/22/12	By FI	Prep Date	Prep Batch	Analytical Batch GSS132
TC8546-1	SS002627.D		05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8545

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Section 6: GC Volatiles - QC Data Summaries	
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6.2: Blank Spike Summary	
6.3: Matrix Spike Summary	
6.4: Duplicate Summary	



Sample Summary

EarthCon Consultants

Job No:

TC8545

First Quarterly Well Sampling, Parker County, Texas

Sample Number	Collected		Doggivad	Matrix Received Code Type		Client
Number	Date	Time By	Received	Code	Туре	Sample ID
TC8545-1	05/12/12	16:20	05/15/12	AQ	Ground Water	WWW25-MAT-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8545

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 10:20:09 AM

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8545. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results
Report of Analysis



Report of Analysis

Client Sample ID: WWW25-MAT-051212

 Lab Sample ID:
 TC8545-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017775.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	93% 98% 101% 98%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW25-MAT-051212

 Lab Sample ID:
 TC8545-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002625.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002626.D	5	05/22/12	FI	n/a	n/a	GSS132

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.460 a	0.0025	0.0015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0273	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00375	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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Gabriela Floreslovo															ıe, i										LIQ - Other Liquid AIR - Air
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Accutest Sample # Field ID /	Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	豆	NaOH	HN03	NONE	Di Water MEOH	VaHSO4	ENCORE OTHER	BTEX 8260B	Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175										LAB USE ONLY
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TC8545: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC8545	Client: EARTHC	ON	Project:	FIRST QUARTERLY W	ELL SAMPLI	NG PARKER
Date / Time Received: 5/15/2012	Delivery	Method:	FedEx Airbill #'s	800040672089		
No. Coolers: 1 Therm	ID: IRGUN5		Temp Adju	stment Factor: -0.5		
Cooler Temps (Initial/Adjusted): #1:	(3.3/2.8)		***************************************			
Cooler Security Y or N		Y or N	Sample Integrity - Docum	entation Y	or N	
1. Custody Seals Present:	3. COC Present:	\mathbf{Z}	Sample labels present on be			
2. Custody Seals Intact:	4. Smpl Dates/Time OK		Container labeling complete			
Cooler Temperature Y or	<u> N</u>		3. Sample container label / Co	OC agree:		
1. Temp criteria achieved:			Sample Integrity - Condit	ion <u>Y</u>	or N	
	ed Gun		Sample recvd within HT:	<u> </u>		
3. Cooler media: Ice	(Bag)		2. All containers accounted fo	r. 🔽		
Quality Control Preservatio Y o	r N N/A	WTB STB	3. Condition of sample:		Intact	
1. Trip Blank present / cooler:			Sample Integrity - Instruc	tions Y	or N	N/A
2. Trip Blank listed on COC:			Analysis requested is clear	:		
3. Samples preserved properly:			2. Bottles received for unspec	cified tests	7	
4. VOCs headspace free:			3. Sufficient volume recvd for	analysis:		
			4. Compositing instructions of	lear:		Y
			5. Filtering instructions clear:			V
Comments Trip blank is reported in job To	C8536.					
Accutest Laboratories V:713.271.4700			arwin Drive 271.4770			uston, TX 77036 w/accutest.com

TC8545: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8545

CSR: Elessa Sommers Response Date: 5/16/2012

Response: Trip blank is reported in job TC8536.

4

TC8545: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8545

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	Hq	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8545-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8545-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8545-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8545-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8545-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8545-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8

TC8545: Chain of Custody

Page 4 of 4





Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC8545 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

	111	i leid chairi-or-custody docum	eritation,
	R2	Sample identification cross-re	ference;
	R3	Test reports (analytical data sl	heets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data include	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for	or blank samples;
	R6	Test reports/summary forms for	or laboratory control samples (LCSs) including:
		, a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
□	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
-		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		ď)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
Ū.	R8	Laboratory analytical duplicate	e (if applicable) recovery and precision:
•		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ū.	R9	List of method quantitation lim	its (MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
•		отто ресолого от отто	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and C accreditation under the Texas Laboratory Accreditation Program.
mounou ic	WINCII UIC	laboratory does not note type.	accreditation under the rexast aboratory Accreditation Program.
Dalassa	C4-44-		- of this laboration, data markers. This laboration is NELAC accordited and a short
		•	e of this laboratory data package. This laboratory is NELAC accredited under the
			ethods, analytes, and matrices reported in this data package except as noted in
			eviewed by the laboratory and is complete and technically compliant with the
			ed by the laboratory in the attached exception reports. By my signature below, I
			nalies, observed by the laboratory as having the potential to affect the quality of
	nave been i	dentified by the laboratory in the	Laboratory Review Checklist, and no information or data have been knowingly
withheld.			
Check, if	applicable	: This laboratory meets an exce	eption under 30 TAC&25.6 and was last inspection by
[]		•	April 2011. Any findings affecting the data in this laboratory data package are
			s herein. The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/24/2012

Official Title (printed)

Laboratory Director



	L	ABORATORY REVIEW O	DATA					
Laboratory	y Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12		
		First Overtarly Wall Sampling						
Project Na	ame.	First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	т.	8545			
Reviewer		Elessa Sommers	Prep Batch Number(s):	+		VE81	2	
#1	I A ²	DESCRIPTION	Trop Edicit Hambor(o).					ER#
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		Did samples meet the laboratory's sta	andard conditions of sample acceptability	X				
		upon receipt?						
			onditions described in an exception report?	X	Ш			
R2	OI	Sample and quality control (QC) id						
			s-referenced to the laboratory ID numbers?	X				
		·	eferenced to the corresponding QC data?	X	Ш			
R3	OI	Test reports	T. St. Lat. Programs					
		Were samples prepared and analyze		X	Н			<u> </u>
		standards?	all other raw values bracketed by calibration	X				
		Were calculations checked by a peer	or supervisor?	X	Н		-	
		Were all analyte identifications check	·	X	H			
		Were sample detection limits reporte		X	П			
			t samples reported on a dry weight basis?			Х		
		Were % moisture (or solids) reported				Χ		
		· ·	platile analysis extracted with methanol per			Х		
		SW846 Method 5035?		-				<u> </u>
R4	0	If required for the project, are TIC's re Surrogate recovery data	еропеа?		ш	Χ		
K4	 	Were surrogates added prior to extra	ction?	Х				
			all samples within the laboratory QC limits?	TX				
R5	OI	Test reports/summary forms for bl						
		Were appropriate type(s) of blanks as	Х					
		Were blanks analyzed at the appropr	Х					
		Were method blanks taken through the	X					
		preparation and, if applicable, cleanu						
		Were blank concentrations <mql?< td=""><td></td><td>X</td><td></td><td></td><td></td><td></td></mql?<>		X				
R6	OI	Laboratory control samples (LCS)		- V			-	
		Were all COCs included in the LCS?	tire analytical procedure, including prep and	X	Н			—
		cleanup steps?	ine analytical procedure, including prep and	X				
		Were LCSs analyzed at required free	quency?	X	Н			
			%Rs within the laboratory QC limits?	X				
		Does the detectablility check sample	data document the laboratory's capability to	X				_
		detect the COCs at the MDL used to		^				2
		Was the LCSD RPD within QC limits			Щ	Χ		
R7	OI	Matrix spike (MS) and matrix spike		V				
		Were the project/method specified and Were MS/MSD analyzed at the appropriate the specified and the sp	nalytes included in the MS and MSD?	X	Н			-
		Were MS (and MSD, if applicable) %		+^	Х			1
		Were the MS/MSD RPDs within labor	· · · · · · · · · · · · · · · · · · ·	X	Ĥ			
R8	OI	Analytical duplicate data	, a	Ĥ				
	T -	Were appropriate analytical duplicate	es analyzed for each matrix?	Х				
		Were analytical duplicates analyzed		Х				
			ations within the laboratory QC limits?		Х			1
R9	OI	Method quantitation limits (MQLs)						
			te included in the laboratory data package?	X	Ш			<u> </u>
			entration of the lowest non-zero calibration	X	\ ,			
D40			luded in the laboratory data package?		Х			3
R10	OI	Other problems/anomalies Are all known problems/anomalies/sr	pecial conditions noted in this LRC and ER?	X			1	
			logy used to lower the SDL to minimize the	\^	H			
			under the Texas Laboratory Accreditation	 ^	H			
			nd methods associated with this laboratory	X				
	1	data package?		1	i l	1		1



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12			
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC	B545	;			
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	32,	VE81	2		
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5	
S1	OI	Initial calibration (ICAL)							
		Were response factors and/or relative	e response factors for each analyte within QC	х					
		limits?							
		Were percent RSDs or correlation co		Х					
			mended in the method used for all analytes?	Х					
			ne lowest and highest standard used to	l x l				l	
		calculate the curve?							
		Are ICAL data available for all instrum		Х					
			verified using an appropriate second source	x					
		standard?							
S2	OI		erification (ICCV AND CCV) and continuing						
		Was the CCV analyzed at the method	1 ,	Х					
			alyte within the method-required QC limits?	Х				<u> </u>	
		Was the ICAL curve verified for each	,	Х					
	_	Was the absolute value of the analyte			Х				
S3	0	Mass spectral tuning	Х	_					
			as the appropriate compound for the method used for tuning? ere ion abundance data within the method-required QC limits?						
		1	method-required QC limits?	Х	_				
S4	0	Internal standards (IS)	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ΧΙ					
- 05			Were IS area counts and retention times within the method-required QC limits?						
S5	OI	Raw data (NELAC Section 5.5.10)							
		Were the raw data (for example, chro	Х						
		analyst?	X	_			<u> </u>		
	0	Were data associated with manual in Dual column confirmation	^						
S6	-	Did dual column confirmation results			Х				
S7	0	Tentatively identified compounds (^			
31			s spectra and TIC data subject to appropriate						
		checks?	ss spectra and The data subject to appropriate			Χ			
S8	1	Interference Check Sample (ICS) r	esults						
	·	Were percent recoveries within method				Х			
S9	ı	· · · · · · · · · · · · · · · · · · ·	kes, and method of standard additions						
			, and the linearity within the QC limits						
		specified in the method?	,			Х			
S10	OI	Method detection limit (MDL) studi	es						
		Was a MDL study performed for each	reported analyte?	Х					
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2	
S11	OI	Proficiency test reports							
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х					
		evaluation studies?		^					
S12	OI	Standards documentation							
		Are all standards used in the analyse	s NIST-traceable or obtained from other	x					
		appropriate source?		^					
S13	OI	Compound/analyte identification p							
		Are the procedures for compound/and	,	Х					
S14	OI	Demonstration of analyst compete							
		Was DOC conducted consistent with	·	Х					
		Is documentation of the analyst's com	Χ						
S15	OI	Verification/validation documentat							
		Are all the methods used to generate	X						
		validated, where applicable?	^`						
S16	OI	Laboratory standard operating pro		\.					
	l	Are laboratory SOPs current and on f	ile for each method performed?	Х				I	



	LABOR	KATURY REVIEW	CHECKLIST (continued): E	xception Reports						
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/24/2012						
Project Na	me:	First Quarterly Well San	npling, Pa Laboratory Project Number:	TC8545						
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS132, VE812						
ER# ¹	Description	on	·	•						
1	All anomal	ies are discussed in the case	narrative.							
2	l	atory does not perform DCS are values in the Texas TRRP	analysis for Method RSKSOP-147/175. The PCL tables.	compounds reported are not listed of						
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.									
4		ng purposes, the MQL is defi SDL is defined in the report	ned in the report as the RL. The unadjusted as the MDL.	MQL/RL is reported in the method						
	l									

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8545

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8545

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary Job Number: TC8545

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2 100-41-4 108-88-3	Benzene Ethylbenzene Toluene	1030 26.7 ND	250 250 250	1260 272 246	92 98 98	1280 267 240	100 96 96	2 2 2	76-118/16 75-112/12 77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8545

PESTXST EarthCon Consultants **Account:**

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8545

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS132-BS	File ID SS002611.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8545

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8545

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8546-1DUP	SS002628.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8546-1	SS002627.D	1	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30



05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8546

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Sample Summary

EarthCon Consultants

Job No:

TC8546

First Quarterly Well Sampling, Parker County, Texas

Sample Collected		Matrix		ix	Client	
Number	Date	Time By	Received	Code	Type	Sample ID
TC8546-1	05/12/12	13:05	05/15/12	AQ	Ground Water	WWW04-ABB-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8546

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 10:31:16 AM

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8546. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW04-ABB-051212

 Lab Sample ID:
 TC8546-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017776.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	95% 99% 98%		79-122% 75-121% 87-119%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW04-ABB-051212

 Lab Sample ID:
 TC8546-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002627.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2							

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.140	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00804	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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CHAIN OF CUSTODY

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Client / Reporting Information	Project Name:		Project	Informa	tion	101							Щ_			Red	ues	ted	Ana	lyse	s			Matrix Codes
Company Name	r rojeci Name.													امة										
		Well Samplin	g, Parker C	ounty, T	exas	ron iron	, charles							Isobutane, Methane,										DW - Drinking Water
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4800 Sugar Grove Blvd., Suite 390 City State Zip C	City		State	Bitling In Company	nformatio	on (If	differ	ent fro	om R	oport to)		-	e e	1		1							SW - Surface Water
Stafford TX 77477	•													l <u>a</u>	1									SO - Soil SL- Sludge
	Project #	***************************************		Street Ad	ldress								-	망										SED-Sediment OI - Oil
Gabriela Floreslovo														e,										LIQ - Other Liquid
	Client Purchase C	Order #		City				S	State		2	lip .		ta i	22	1								AIR - Air SOL - Other Solid
281-201-3513 Sampler(s) Name(s) Phone # F	Project Manager			Attention									_	Ethane, Ethene,	[]									WP - Wipe FB-Field Blank
KATHLEEN BUXTON 281-240-52	Project Manager			Altention										a la	일									
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Serge # Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	豆	ZAR.	NH S	NONE NO	DI Wa	d2	S C S		Butane, Etha	욉									LAB USE ONLY
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Emergency & Rush T/A data available VIA Lablink												Summar	ry											
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TC8546: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Client: EARTHCON Project: FIRST QUARTERLY WELL SAMPLING PARKER Accutest Job Number: TC8546 Date / Time Received: 5/15/2012 FedEx Airbill #'s: 800040672089 Delivery Method: Therm ID: IRGUN5 No. Coolers: 1 Temp Adjustment Factor: -0.5 Cooler Temps (Initial/Adjusted): #1: (3.3/2.8) **Cooler Security** Y or N Sample Integrity - Documentation Y or N Y or N 3. COC Present: ✓ V 1. Custody Seals Present: V 1. Sample labels present on bottles: 4. Smpl Dates/Time OK V 2. Custody Seals Intact: ✓ 2. Container labeling complete: 3. Sample container label / COC agree: П ✓ Y or N Cooler Temperature 1. Temp criteria achieved: Y or N Sample Integrity - Condition 2. Cooler temp verification: Infared Gun 1. Sample recvd within HT: 3. Cooler media: Ice (Bag) 2. All containers accounted for: 3. Condition of sample: Intact **Quality Control Preservatio** Y or N N/A WTB STB V 1. Trip Blank present / cooler: \checkmark N/A Sample Integrity - Instructions <u>Y</u> or N V 2. Trip Blank listed on COC: 1. Analysis requested is clear: V 3. Samples preserved properly 2. Bottles received for unspecified tests V 4. VOCs headspace free: **V** 3. Sufficient volume recvd for analysis: **V** 4. Compositing instructions clear: ✓ 5. Filtering instructions clear: V Comments Trip blank is reported in job TC8536.

Accutest Laboratories
V:713.271.4700

10165 Harwin Drive F: 713.271.4770 Houston, TX 77036 www/accutest.com

Page 1 of 3

TC8546: Chain of Custody Page 2 of 4







Problem Resolution

Accutest Job Number: TC8546

CSR: Elessa Sommers Response Date: 5/16/2012

Response: Trip blank is reported in job TC8536.



TC8546: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8546

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8546-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8546-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8546-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8546-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8546-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8546-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8

TC8546: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC8546 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

ė	R1	Field chain-of-custody documenta	ation;
ū.	R2	Sample identification cross-refere	nce;
ū.	R3	Test reports (analytical data sheet	s) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for bl	ank samples;
	R6	Test reports/summary forms for la	boratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spik	re/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if	applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9		MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
		•	R)" item in Laboratory Review Checklist and for each analyte, matrix, and
method for	or which the	laboratory does not hold NELAC ac	creditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release of	this laboratory data package. This laboratory is NELAC accredited under the
Texas Lal	boratory Acc	creditation Program for all the metho	ods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report.	. This data package has been review	wed by the laboratory and is complete and technically compliant with the
requireme	ents of the m	nethods used, except where noted b	y the laboratory in the attached exception reports. By my signature below, I
affirm to t	he best of m	y knowledge, all problems/anomalie	es, observed by the laboratory as having the potential to affect the quality of
the data,	have been id	dentified by the laboratory in the Lat	poratory Review Checklist, and no information or data have been knowingly
withheld.			
Check, if	applicable	: This laboratory meets an exception	n under 30 TAC&25.6 and was last inspection by
[]		[X]TCEQ or [] on Apr	il 2011. Any findings affecting the data in this laboratory data package are
			erein. The official signing the cover page of the report in which these data are
			his data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

5/24/2012



	L	ABORATORY REVIEW C	CHECKLIST: REPORTABLE	DAI	Α						
Laboratory	y Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12					
		First Overtorly Well Sampling									
Project Na	amo:	First Quarterly Well Sampling, Parker County, Texas	т.	8546							
Reviewer		Elessa Sommers	GSS132, VE812								
#1	I A ²	DESCRIPTION	Prep Batch Number(s):		- ,			ER#			
R1	OI	CHAIN-OF-CUSTODY (C-O-C):									
		Did samples meet the laboratory's sta	andard conditions of sample acceptability	X							
		upon receipt?									
			onditions described in an exception report?	X							
R2	OI	Sample and quality control (QC) id									
		Are all field sample ID numbers cross	X								
		*	eferenced to the corresponding QC data?	X							
R3	OI	Test reports					-				
		Were samples prepared and analyze		X							
			all other raw values bracketed by calibration	X				ii.			
		standards? Were calculations checked by a peer	or euparvisor?	X							
		Were all analyte identifications check	•	 ^							
		Were sample detection limits reported		X							
			t samples reported on a dry weight basis?	Ť		Х					
		Were % moisture (or solids) reported	for all soil and sediment samples?			Х					
			latile analysis extracted with methanol per			Х					
		SW846 Method 5035?									
- 54	<u> </u>	If required for the project, are TIC's re	eported?			Х					
R4	0	Surrogate recovery data Were surrogates added prior to extra	otion?				_				
			all samples within the laboratory QC limits?	X							
R5	OI	Test reports/summary forms for bl	· · · · · · · · · · · · · · · · · · ·	 ^							
- 110	 	Were appropriate type(s) of blanks as	<u> </u>	Х			$\overline{}$				
		Were blanks analyzed at the appropr		X							
		Were method blanks taken through the									
		preparation and, if applicable, cleanu	p procedures?	X				1			
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х							
R6	OI	Laboratory control samples (LCS)									
		Were all COCs included in the LCS?		X							
		cleanup steps?	tire analytical procedure, including prep and	X				i			
		Were LCSs analyzed at required free	niency?	X							
		Were LCS (and LCSD, if applicable)		T X							
			data document the laboratory's capability to								
		detect the COCs at the MDL used to		X				2			
		Was the LCSD RPD within QC limits	?			Х					
R7	OI	Matrix spike (MS) and matrix spike									
			nalytes included in the MS and MSD?	X							
		Were MS/MSD analyzed at the appro		X							
		Were MS (and MSD, if applicable) % Were the MS/MSD RPDs within labo	· · · · · · · · · · · · · · · · · · ·	X	Х			1			
R8	OI		ratory QC IIIIIIIS?								
ΚO	0	Analytical duplicate data Were appropriate analytical duplicate	es analyzed for each matrix?	X			T				
		Were analytical duplicates analyzed		l x							
			ations within the laboratory QC limits?	 ^	Х		\dashv	1			
R9	OI	Method quantitation limits (MQLs):									
			te included in the laboratory data package?	Х							
		-	entration of the lowest non-zero calibration	Х							
			uded in the laboratory data package?		Χ			3			
R10	OI	Other problems/anomalies									
			pecial conditions noted in this LRC and ER?	X							
	1		logy used to lower the SDL to minimize the	X							
			ander the Texas Laboratory Accreditation					1			
	1	program for the analytes, matrices, a	nd methods associated with this laboratory	X	1			i			



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC	3546	;		
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	32,	VE81	2	
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?						
		Were percent RSDs or correlation co		Χ				
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	x				l
		calculate the curve?						
		Are ICAL data available for all instrum		Χ				
			verified using an appropriate second source	x				
		standard?						
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	Х				<u> </u>
		Was the ICAL curve verified for each	,	Х				
	_		e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Х</th><th></th><th></th></mdl?<>			Х		
S3	0	Mass spectral tuning			_			
		Was the appropriate compound for the		X				
		Were ion abundance data within the	method-required QC limits?	Х				
S4	0	Internal standards (IS)	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	V 1				
- 05			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		, , , , , , , , , , , , , , , , , , , ,	matograms, spectral data) reviewed by an	Х				
		analyst?	togrations flagged on the row date?	Х				<u> </u>
	0	Were data associated with manual in Dual column confirmation	legrations hagged on the raw data?					
S6	-	Did dual column confirmation results	most the method required OC2			Х		
S7	0	Tentatively identified compounds				^		
31			s spectra and TIC data subject to appropriate					
		checks?	ss spectra and Tro data subject to appropriate			Χ		
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within method				Х		
S9	ı		kes, and method of standard additions					
			, and the linearity within the QC limits		$\overline{}$			
		specified in the method?	,			Х		
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports						
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х				
		evaluation studies?		^				
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	х				
		appropriate source?		_^				
S13	OI	Compound/analyte identification p						
		Are the procedures for compound/and	,	Х				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with		Х				
		Is documentation of the analyst's com		Χ				
S15	OI		ion for methods (NELAC Chapter 5)					
		· ·	the data documentated, verified, and	X				
		validated, where applicable?						
S16	OI	Laboratory standard operating pro		·				
	l	Are laboratory SOPs current and on f	ile for each method performed?	Х				I



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports										
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/24/2012							
Project Na	me:	First Quarterly Well Sampling, Page 1	Laboratory Project Number:	TC8546							
Reviewer Name: Elessa Sommers		Elessa Sommers	Prep Batch Number(s):	GSS132, VE812							
ER# ¹	Description	on									
1	All anomal	ies are discussed in the case narrative	9.								
2	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.										
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.										
4		ng purposes, the MQL is defined in the SDL is defined in the report as the MI	e report as the RL. The unadjusted MQL/RL is DL.	reported in the method							

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary

Job Number: TC8546

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8546

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8546

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12
	•								
CACN	g 4 P	MC	MCD	TD C	10015 5	T · · ·			

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8546

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8546

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-BS	File ID SS002611.D	DF	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8546

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8546

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample TC8546-1DUP TC8546-1	File ID SS002628.D SS002627.D	Analyzed 05/22/12 05/22/12	By FI FI	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS132 GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8547

Sampling Date: 05/13/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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6.4: Duplicate Summary	



Sample Summary

EarthCon Consultants

Job No: TC8547

First Quarterly Well Sampling, Parker County, Texas

Sample Number	Collected Date	Time By	Pagaiyad	Matrix d Code Type		Client Sample ID
Nullibei	Date	Time by	Received	Coue	Турс	Sample 1D
TC8547-1	05/13/12	11:55	05/15/12	AQ	Ground Water	WWW06-THO-051312





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8547

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 11:45:02 AM

1 Sample was collected on 05/13/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8547. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results		
Report of Analysis		



Report of Analysis

Client Sample ID: WWW06-THO-051312

 Lab Sample ID:
 TC8547-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017777.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00032 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	92% 98% 96% 97%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: WWW06-THO-051312

 Lab Sample ID:
 TC8547-1
 Date Sampled:
 05/13/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002629.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002631.D	2	05/22/12	FI	n/a	n/a	GSS132

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.293 a	0.0010	0.00060	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0889	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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		THE CASE ASSESSMENT OF THE PROPERTY OF THE PRO		10165 Harwin Dr, Ste 150 Houston, TX 77036									FED-EX Tracking # Accutest Quote #					Bottle Order Control # Accuriest Job #			<u> </u>	108547				
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7	Compa	ny Name	Project Name:		,											1										
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Commercial "A" (Level 1)

| Commercial A" (Level 1)
| Commercial "B" { Level 2)
| FULT1 (Level 3+4)
| REDT1 { Level 3+4}
| Commercial "C"

Sample Custody must be documented below each time samples change possession, including courier delivery.

X TRRP

Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Commercial "A" = Results Only

Custody Seal#

EDD Format

Intact
Not inlact

Tumaround Time (Business days)

2 Day RUSH
1 Day EMERGENCY
Emergency & Rush T/A data available V/A Lablink

Batestime: 13 /3001 FEDUL

Received By:

X Standard

5 Day RUSH
4 Day RUSH
3 Day RUSH

TC8547: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Accutest Job Number:	TC8547	Client:	EARTHCON			Project:	FIRST QUARTE	ERLY WE	LL SAMPLI	NG PARKER
Date / Time Received:	5/15/2012		Delivery Method:		FedEx	Airbill #'s:	800040672089			
No. Coolers: 1	Therm ID:	IRGUN5				Temp Adjus	tment Factor:	-0.5		
Cooler Temps (Initial/Ad	justed): #1: (3.3/2	2.8)								
Cooler Security	Y or N		Y or	<u> </u>	Sample Inte	grity - Docume	ntation	Y	or N	
1. Custody Seals Present:	ليسا ليسا	3. COC Pr	191		1. Sample lab	els present on bo	ottles:	~		
2. Custody Seals Intact:	4.8	Smpl Date	s/Time OK 📝		2. Container I	abeling complete	:	•		
Cooler Temperature	Y or N	•			3. Sample co	ntainer label / CC	C agree:	V		
1. Temp criteria achieved:					Sample Inte	grity - Conditi	on	<u>Y</u>	or N	
2. Cooler temp verification:	Infared Gu				1. Sample red			$\overline{\mathbf{v}}$		
3. Cooler media:	Ice (Bag)				2. All containe	ers accounted for	:	₹		
Quality Control Preserva	atio <u>Y or N</u>	N/A	WTB	STB	3. Condition of	of sample:			Intact	ANALISA ANALISA
1. Trip Blank present / coole			•		Sample Inte	egrity - Instruct	ions	Y	or N	N/A
2. Trip Blank listed on COC	:				1. Analysis re	equested is clear:		V		
3. Samples preserved prope	erly: 🔽 🗀				2. Bottles rec	celved for unspec	fied tests		<u> </u>	
4. VOCs headspace free:	\mathbf{Z}				3. Sufficient v	volume recvd for	analysis:	V		
					4. Compositi	ng instructions cl	ear:			~
					5. Filtering in	structions clear:				2
Comments Trip blank is re	ported in job TC8536	5.								

Accutest Laboratories V:713.271.4700				10165 Har F: 713.2						uston, TX 77036 w/accutest.com

TC8547: Chain of Custody Page 2 of 4

Page 1 of 3









Accutest Job Number: TC8547

CSR: Elessa Sommers

Response Date:

Problem Resolution

5/16/2012

Response: Trip blank is reported in job TC8536.

4

TC8547: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8547

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol Bot # Location Pres pH		рН	Therm ID	Initial Temp	Therm CF	Corrected Temp		
1	TC8547-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8547-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8547-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8547-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8547-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8547-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8

TC8547: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8547 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

	R2	Sample identification cross-re	eference;
	R3	Test reports (analytical data s	heets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data inclu	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms	for blank samples;
	R6	Test reports/summary forms	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
₽	R8	Laboratory analytical duplicat	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
₽	R9	List of method quantitation lin	nits (MQLs) and detectability check sample results for each analyte for each
ė	R10	Other problems or anomalies	
•		•	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and C accreditation under the Texas Laboratory Accreditation Program.
memou i	JI WIIICII IIIE	laboratory does not note NELA	C accreditation under the Texas Laboratory Accreditation Frogram.
Texas La the Excep requirement affirm to t	boratory Acc otion Report. ents of the m he best of m	reditation Program for all the m This data package has been r nethods used, except where not y knowledge, all problems/ano	the of this laboratory data package. This laboratory is NELAC accredited under the lethods, analytes, and matrices reported in this data package except as noted in eviewed by the laboratory and is complete and technically compliant with the led by the laboratory in the attached exception reports. By my signature below, I malies, observed by the laboratory as having the potential to affect the quality of a Laboratory Review Checklist, and no information or data have been knowingly
Check if	applicable	: This laboratory meets an exc	eption under 30 TAC&25.6 and was last inspection by
[]		·	
		noted in the Exception Repor	April 2011. Any findings affecting the data in this laboratory data package are ts herein. The official signing the cover page of the report in which these data are ing this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

5/24/2012



	L	ABORATORY REVIEW O	CHECKLIST: REPORTABLE	DAT	Ά							
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12						
Project Na	me:	First Quarterly Well Sampling, Parker County, Texas	TC8547									
Reviewer	Name:	Elessa Sommers	GSS132, VE812									
# ¹	A ²	DESCRIPTION		YES	NO	NA ³	NR⁴	ER#				
R1	OI	CHAIN-OF-CUSTODY (C-O-C):										
		upon receipt?	andard conditions of sample acceptability	Х								
		· · · · · · · · · · · · · · · · · · ·	onditions described in an exception report?	X			\bot					
R2	OI	Sample and quality control (QC) id										
			s-referenced to the laboratory ID numbers?	X								
		·	referenced to the corresponding QC data?	X			L					
R3	OI	Test reports										
		Were samples prepared and analyze	<u> </u>	X			₩	├──				
		standards?	e all other raw values bracketed by calibration	Х								
		Were calculations checked by a peer		X			<u> </u>					
		Were all analyte identifications check		X			<u> </u>					
		Were sample detection limits reporte		X			₩	├─				
			t samples reported on a dry weight basis?	-		X	<u> </u>					
		Were % moisture (or solids) reported Were bulk soils/solids samples for vo			Х							
		SW846 Method 5035?			Х							
		If required for the project, are TIC's re	 		Х	 						
R4	0	Surrogate recovery data				,						
		Were surrogates added prior to extra	action?	Х								
		Were surrogate percent recoveries in	n all samples within the laboratory QC limits?	Х								
R5	OI	Test reports/summary forms for b	lank samples									
		Were appropriate type(s) of blanks a		X								
		Were blanks analyzed at the appropriate		X			<u> </u>					
			the entire analytical process, including	l x								
		preparation and, if applicable, cleanu	ıp procedures?	<u> </u>				-				
R6	OI	Were blank concentrations <mql?< td=""><td></td><td>X</td><td></td><td></td><td>_</td><td></td></mql?<>		X			_					
- Ko	OI .	Were all COCs included in the LCS?		X								
			tire analytical procedure, including prep and				 					
		cleanup steps?	and analytical procedure, morating prop and	X								
		Were LCSs analyzed at required free	quency?	X								
			%Rs within the laboratory QC limits?	X								
		Does the detectablility check sample	data document the laboratory's capability to	Х				2				
		detect the COCs at the MDL used to		^								
		Was the LCSD RPD within QC limits				X	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$					
R7	OI	Matrix spike (MS) and matrix spike			_		_					
			nalytes included in the MS and MSD?	X								
		Were MS/MSD analyzed at the approver Were MS (and MSD, if applicable) %		X	Х		 	1				
		Were the MS/MSD RPDs within labor	<u> </u>	X	^		<u> </u>					
R8	OI	Analytical duplicate data	oratory QC illinits:	 ^								
- 1.0	<u> </u>	Were appropriate analytical duplicate	es analyzed for each matrix?	Х								
		Were analytical duplicates analyzed		T X								
			iations within the laboratory QC limits?	 ^	Х			1				
R9	OI	Method quantitation limits (MQLs)										
			rte included in the laboratory data package?	Х								
		Do the MQLs correspond to the cond	Х									
		Are unadjusted MQLs and DCSs inc		Χ			3					
R10	OI	Other problems/anomalies		X								
		Are all known problems/anomalies/special conditions noted in this LRC and ER?					Ь—					
	-		ology used to lower the SDL to minimize the	X			₩	<u> </u>				
			under the Texas Laboratory Accreditation									
			and methods associated with this laboratory	X								
	data package?											



Laboratory	Name:	Accutest Gulf Coast LRC Date:		5/2	4/20	12		
Project Name:		First Quarterly Well Sampling, Pa Laboratory Project Number:						
Reviewer	Name:	Elessa Sommers Prep Batch Number(s):			8547	VE8	12	
#1	A ²	DESCRIPTION						ER#
 S1	OI		- 1	I E S	NO	INA	INIC	EN#
31	0	Initial calibration (ICAL) Were response factors and/or relative response factors for each analyte within	000					
		limits?	QC	x				
		Were percent RSDs or correlation coefficient criteria met?		Х				
		Was the number of standards recommended in the method used for all analytic	002	X				
		Were all points generated between the lowest and highest standard used to	69 :	^				
		calculate the curve?		Х				
		Are ICAL data available for all instruments used?		Х				
		Has the initial calibration curve been verified using an appropriate second sou						
		standard?	irce	Χ				
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and contin	uina		-			
- 32	<u> </u>	Was the CCV analyzed at the method-required frequency?	luling	Х				
	Were percent differences for each analyte within the method-required QC limits?							
	Was the ICAL curve verified for each analyte?							
		Was the absolute value of the analyte concentration in the inorganic CCB <md< td=""><td>12</td><td>Χ</td><td></td><td>Х</td><td></td><td></td></md<>	12	Χ		Х		
S3	0	Mass spectral tuning	, <u>-</u> :					
	 	Was the appropriate compound for the method used for tuning?	_	Х				
		Were ion abundance data within the method-required QC limits?	-	X				
S4	0	Internal standards (IS)		^				
34		Were IS area counts and retention times within the method-required QC limits	2	Х				
S5	OI	Raw data (NELAC Section 5.5.10)		^				
	01	Were the raw data (for example, chromatograms, spectral data) reviewed by a	_					
	analyst?							
		Were data associated with manual integrations flagged on the raw data?		Х				
S6	0	Dual column confirmation		^	-			
		Did dual column confirmation results meet the method-required QC?				Х		
S7	0	Tentatively identified compounds (TICs):				_^		
31		If TICs were requested, were the mass spectra and TIC data subject to approp	rioto					
		checks?	male			Х		
S8		Interference Check Sample (ICS) results						
	-	Were percent recoveries within method QC limits?				Х		
S9	1	Serial dilutions, post digestion spikes, and method of standard additions				_^		
	-	Were percent differences, recoveries, and the linearity within the QC limits	`			ı		
		specified in the method?				Х		
S10	OI	Method detection limit (MDL) studies						
310	01	Was a MDL study performed for each reported analyte?		Х				
		Is the MDL either adjusted or supported by the analysis of DCSs?	+	X				2
S11	OI	Proficiency test reports	-	^				
-311	<u> </u>	Was the laboratory's performance acceptable on the applicable proficiency tes	ete or					
		evaluation studies?	oto UI	Χ				
S12	OI	Standards documentation						
	 	Are all standards used in the analyses NIST-traceable or obtained from other	_					
		appropriate source?		Χ		1		
S13	OI							
313	<u> </u>	Compound/analyte identification procedures Are the procedures for compound/analyte identification documented?						
S14	OI	Demonstration of analyst competency (DOC)		Χ				
314	_ ·	Was DOC conducted consistent with NELAC Chapter 5?		Х				
				X		_	\vdash	
C1E		Is documentation of the analyst's competency up-to-date and on file?		٨				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)	-					
	Are all the methods used to generate the data documentated, verified, and							
	<u> </u>	validated, where applicable?						
S16	OI	Laboratory standard operating procedures (SOPs)		X				
1	Are laboratory SOPs current and on file for each method performed?							



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports										
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/24/2012							
Project Na	me:	First Quarterly Well Sampli	ng, Pa Laboratory Project Number:	TC8547							
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS132, VE812							
ER# ¹	Description	on									
1	All anomal	ies are discussed in the case na	rrative.								
2		atory does not perform DCS ana e values in the Texas TRRP PC	lysis for Method RSKSOP-147/175. The L tables.	compounds reported are not listed or							
3		ng purposes, the method blank r n the laboratory data package.	represents the unadjusted MQL. The DC	S is on file in the laboratory and is not							
4		ng purposes, the MQL is defined SDL is defined in the report as	d in the report as the RL. The unadjusted the MDL.	MQL/RL is reported in the method							
İ											

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8547

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%

Method: SW846 8260B

Blank Spike Summary Job Number: TC8547

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8547

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8547

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8547

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS132-BS	File ID SS002611.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8547

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l	l Spike Q ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8547

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample TC8546-1DUP TC8546-1	File ID SS002628.D SS002627.D	Analyzed 05/22/12 05/22/12	By FI FI	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS132 GSS132
					-2 1	

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8548

Sampling Date: 05/14/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

Job No:

TC8548

First Quarterly Well Sampling, Parker County, Texas

Sample Number	Collected Date	Time By	Received	Matr		Client Sample ID
Nullibei	Date	Time by	Received	Coue	Турс	Sample 1D
TC8548-1	05/14/12	09:40	05/15/12	AQ	Ground Water	WWW01-WEL-051412





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8548

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 11:59:38 AM

1 Sample was collected on 05/14/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8548. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW01-WEL-051412

 Lab Sample ID:
 TC8548-1
 Date Sampled:
 05/14/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017778.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	91% 98% 97% 99%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW01-WEL-051412

 Lab Sample ID:
 TC8548-1
 Date Sampled:
 05/14/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002632.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002633.D	10	05/22/12	FI	n/a	n/a	GSS132

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	1.36 a	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.120	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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1100000000	Client / Reporting Information			Project	Informa	ation	H									Req	ues	ted	Ana	ly se	5	1		Matrix Codes
Compar	ny Name	Project Name:													_									
EarthC	Con Consultants, Inc.	First Quarter	ly Well Sampli	ng, Parker C	ounty,	Texas									ane									W - Drinking Water
Street A	ddress	Street					tallibite			oi ruis etena	n diray	(FAILTER	Kulliba:		eth								0	W - Ground Water
4800 S	ugar Grove Blvd., Suite 390					Informatio	on (If c	lifforo	nt from	Repo	rt to)				Μ,									WW - Water W - Surface Water
City	State Zip	City		State	Compan	y Name									tane								٦	SO - Soil
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Project		Project #			Street A	aaress									JSI .									OI - Oil LIQ - Other Liquid
	la Floreslovo	Client Purchase	Onles #		City				State			Zip			ane.									AIR - Air
Phone #	•	Cilent Purchase	Order#		City				Cini	-		Zip			Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175							-		SOL - Other Solid WP - Wipe
281-20 Sample	1-3513 r(s) Name(s) Phone #	Project Manage	,		Attention	r									S, ie									FB-Field Blank
KATI	HLEENBUXTON 281-240-5				,									8	har y R									
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Acculest Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of battles	크	Z.	HZSO4	NONE DI W.	MEG	NaHSO4	OTHER	BTEX	B or									LAB USE ONLY
\Box	WWW01-WEL-051412	5/14/12	9:40	KB	W	10	X							V	X								П	
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mind	Turnaround Time (Business days)						•		eliverab									Com	ments /	Specia	l Instruc	tions		
X Standard Approved By (Accutest PM): / Date:				Commerc					X															
	5 Day RUSH			Commercial "B" (Level 2) EDD Format																				
	☐ 3 Day RUSH	-			FULT1 (Level 3+4) Other																			
	2 Day RUSH			Commercial "C"													•							
	1 Day EMERGENCY								reint rein	m Dec	ulie Or	du												

Intact
Not intact

Commercial "A" = Results Only

Commercial '5' = Results + OC Summary
Commercial 'C' = Results + OC & Sumgale Summary
Sample Custody must be documented below each time samples change possession, including courier delivery

2 Day RUSH
1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

5.14.12.1300

Received By:

1 FC desc

TC8548: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC	8548	Client:	EARTHCON			Project:	FIRST QUART	ERLY WEI	LL SAMPLI	ING PARKI	ER
Date / Time Received: 5/1	5/2012		Delivery Method	:	FedEx	Airbill #'s:	800040672089			***************************************	
No. Coolers: 1	Therm ID:	IRGUN5				Temp Adjus	tment Factor:	-0.5			
Cooler Temps (Initial/Adjus	sted): #1: (3.3/	2.8)									and a second
	*										
Cooler Security	or N		<u>Y</u> 0	r N	Sample Inte	egrity - Docume	entation	<u>Y</u>	or N		
Custody Seals Present:	لببا الت	3, COC P			1. Sample la	bels present on be	ottles:	V			
2. Custody Seals Intact:	2	Smpi Date	es/Time OK 🔽		2. Container	labeling complete	: :	V			
Cooler Temperature	Y or N	_			3. Sample co	ontainer label / CC	OC agree:	\checkmark			
1. Temp criteria achieved:	v				Sample Int	egrity - Conditi	on	<u>Y</u>	or N		
Cooler temp verification:	Infared Gu					cvd within HT:		V			
3. Cooler media:	Ice (Bag	<u> </u>			2. All contain	ers accounted for	-	✓			
Quality Control Preservation	Y or N	N/A	WTB	STB	3. Condition	of sample:			Intact		
1. Trip Blank present / cooler:	V		V		Sample Inte	egrity - Instruc	tions	<u>Y</u>	or N	N/A	
2. Trip Blank listed on COC:					1. Analysis r	equested is clear:		V			
3. Samples preserved properly		*****************			2. Bottles re	ceived for unspec	ified tests			·	
4. VOCs headspace free:	v				Sufficient	volume recvd for	analysis:	•			
					4. Composit	ing instructions cl	ear:			\checkmark	
					5. Filtering in	nstructions clear:				✓	
Comments Trip blank is repor	ted in job TC853	6.									
Accutest Laboratories V:713.271.4700	***************************************			10165 Ha						ouston, TX 770	

TC8548: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8548

CSR: Elessa Sommers

Response Date: 5/16/2012

Response: Trip blank is reported in job TC8536.

1

TC8548: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8548

Date / Time Received: 5/15/2012

initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8548-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8548-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8548-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2,8
1	TC8548-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8548-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8548-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8548: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8548 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

Ģ	R2	Sample identification cross-	reference;
₽	R3	Test reports (analytical data	sheets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data inc	luding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms	s for blank samples;
	R6	Test reports/summary form	s for laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project mate	rix spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplic	ate (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation	limits (MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalie	9S .
The Exce	ption Repo	rt for each "No" or "Not Reviev	ved (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the	e laboratory does not hold NEL	AC accreditation under the Texas Laboratory Accreditation Program.
		•	·
Release	Statement	: I am responsible for the rele	ase of this laboratory data package. This laboratory is NELAC accredited under the
			methods, analytes, and matrices reported in this data package except as noted in
			reviewed by the laboratory and is complete and technically compliant with the
			oted by the laboratory in the attached exception reports. By my signature below, I
			nomalies, observed by the laboratory as having the potential to affect the quality of
			the Laboratory Review Checklist, and no information or data have been knowingly
withheld.		identified by the laboratory in	The Eaboratory Provider Circolator, and the information of data have been knowingly
with in lold.			
Check, it	applicable	e: This laboratory meets an ex	ception under 30 TAC&25.6 and was last inspection by
[]		[X] TCEQ or []	on April 2011. Any findings affecting the data in this laboratory data package are
			orts herein. The official signing the cover page of the report in which these data are
			asing this data package and is by signature affirming the above release statement
			5 , 5 , . 5

Official Title (printed)

Laboratory Director

5/24/2012



	L	ABORATORY REVIEW C	CHECKLIST: REPORTABLE	DAT	Α					
Laboratory	/ Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12				
		First Overtants Well Committee								
Project Na	mo:	First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	TC8548						
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	_		VE81	2			
#1	I A ²	DESCRIPTION	Trop Edicit Hambor(o).		- ,			R⁴ER# ⁵		
R1	OI	CHAIN-OF-CUSTODY (C-O-C):								
		Did samples meet the laboratory's sta	andard conditions of sample acceptability	X						
		upon receipt?								
			onditions described in an exception report?	X						
R2	OI	Sample and quality control (QC) id								
		-	s-referenced to the laboratory ID numbers?	X						
		*	eferenced to the corresponding QC data?	X						
R3	OI	Test reports					_			
		Were samples prepared and analyze		X						
			all other raw values bracketed by calibration	X						
		standards? Were calculations checked by a peer	or supervisor?	X				—		
		Were all analyte identifications check	·	l â						
		Were sample detection limits reported		X						
			t samples reported on a dry weight basis?	Ť		Х	\neg			
		Were % moisture (or solids) reported	for all soil and sediment samples?			Х				
			platile analysis extracted with methanol per			Х				
	SW846 Method 5035?							<u> </u>		
- 54		If required for the project, are TIC's re	eported?			Х				
R4	- 3									
	Were surrogates added prior to extraction? Were surrogate percent recoveries in all samples within the laboratory QC limits?			X						
R5	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	 ^						
	 	Were appropriate type(s) of blanks as		Х			$\overline{}$			
		Were blanks analyzed at the appropr		X						
		Were method blanks taken through the	he entire analytical process, including							
		preparation and, if applicable, cleanu	p procedures?	X						
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х						
R6	OI	Laboratory control samples (LCS)								
		Were all COCs included in the LCS?		X				<u> </u>		
		cleanup steps?	tire analytical procedure, including prep and	X						
		Were LCSs analyzed at required free	THENCY?	X						
			%Rs within the laboratory QC limits?	T X						
			data document the laboratory's capability to							
		detect the COCs at the MDL used to		X				2		
		Was the LCSD RPD within QC limits	?			Х				
R7	OI	Matrix spike (MS) and matrix spike								
			nalytes included in the MS and MSD?	X						
		Were MS/MSD analyzed at the appro		X	,,			<u> </u>		
		Were MS (and MSD, if applicable) % Were the MS/MSD RPDs within labo	· · · · · · · · · · · · · · · · · · ·	X	Х			1		
R8	OI		ratory QC IIIIIIIS!							
ΚO	0	Analytical duplicate data Were appropriate analytical duplicate	es analyzed for each matrix?	X			T			
		Were analytical duplicates analyzed		l x						
			ations within the laboratory QC limits?	 ^	Х		\dashv	1		
R9	OI	Method quantitation limits (MQLs):								
			te included in the laboratory data package?	Х						
		-	entration of the lowest non-zero calibration	Х						
			luded in the laboratory data package?		Χ			3		
R10	OI	Other problems/anomalies								
			pecial conditions noted in this LRC and ER?	X	\vdash			 		
	1		logy used to lower the SDL to minimize the	X						
			under the Texas Laboratory Accreditation							
	1	Program for the analytes, matrices, a	nd methods associated with this laboratory	X	1			l		



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/2	4/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC	B548	3		
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	32,	VE81	2	
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?						
		Were percent RSDs or correlation co		Х				
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	l x l				l
		calculate the curve?						
		Are ICAL data available for all instrum		Х				
			verified using an appropriate second source	l x l				
		standard?						
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	Х				<u> </u>
		Was the ICAL curve verified for each	Х					
	_	Was the absolute value of the analyte			Х			
S3	0	Mass spectral tuning		_				
		Was the appropriate compound for the	X					
		Were ion abundance data within the	method-required QC limits?	Х	_			
S4	0	Internal standards (IS)	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	V I				
- 05			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		Were the raw data (for example, chro	Х					
		analyst? Were data associated with manual integrations flagged on the raw data?						<u> </u>
	0	Dual column confirmation						
S6	-	Did dual column confirmation results			Х			
S7	0	Tentatively identified compounds (^			
31			s spectra and TIC data subject to appropriate					
		checks?	ss spectra and The data subject to appropriate			Χ		
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within metho				Х		
S9	ı		kes, and method of standard additions					
			, and the linearity within the QC limits					
		specified in the method?	,			Х		
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports						
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х				
		evaluation studies?		^				
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	x				
		appropriate source?						
S13	OI	Compound/analyte identification procedures						
		Are the procedures for compound/and	,	Х				
S14	OI	Demonstration of analyst compete		X				
		Was DOC conducted consistent with NELAC Chapter 5?						
		Is documentation of the analyst's competency up-to-date and on file?						
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)						
		· ·	the data documentated, verified, and	x				
		validated, where applicable?		_^_				
S16	OI	OI Laboratory standard operating procedures (SOPs) Are laboratory SOPs current and on file for each method performed?						
	l	Are laboratory SOPs current and on f	ile for each method performed?	Х				I



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports							
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/24/2012							
Project Na	me:	First Quarterly Well Sampling, P	Laboratory Project Number:	TC8548							
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS132, VE812							
ER# ¹	Description	on									
1	All anomalies are discussed in the case narrative.										
2	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.										
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.										
4		ng purposes, the MQL is defined in the SDL is defined in the report as the M	ne report as the RL. The unadjusted MQL/RL is IDL.	reported in the method							
			<u> </u>								

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

CF

Method Blank Summary

Job Number: TC8548

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CA	AS No.	Surrogate Recoveries		Limits
18	68-53-7	Dibromofluoromethane	94%	79-122%
17	060-07-0	1,2-Dichloroethane-D4	101%	75-121%
20	37-26-5	Toluene-D8	99%	87-119%
46	0-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8548

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VE812-BS	File ID E0017764.D	DF	Analyzed 05/17/12	By MH	Prep Date n/a	Prep Batch n/a	Analytical Batch VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8548

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits	
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%	
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%	
2037-26-5	Toluene-D8	98%	97%	96%	87-119%	
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%	





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8548

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8548

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GSS132-BS	SS002611.D	1	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8548

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8548

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8546-1DUP	SS002628.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8546-1	SS002627.D	1	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8549

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Sections:

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-1-

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Sample Summary

EarthCon Consultants

Job No: TC8549

First Quarterly Well Sampling, Parker County, Texas

Sample	Collected			Matr		Client
Number	Date	Time By	Received	Code	Туре	Sample ID
TC8549-1	05/12/12	11:05	05/15/12	AQ	Ground Water	WWW13-STR-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8549

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 12:12:53 PM

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8549. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8541-1MS, TC8546-1DUP were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Ethane, Methane are outside control limits for sample TC8546-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results
Report of Analysis



Report of Analysis

Client Sample ID: WWW13-STR-051212

 Lab Sample ID:
 TC8549-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017779.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00028 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	94% 99% 97% 95%		79-122% 75-121% 87-119% 80-133%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW13-STR-051212

 Lab Sample ID:
 TC8549-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002634.D	1	05/22/12	FI	n/a	n/a	GSS132
Run #2	SS002635.D	20	05/22/12	FI	n/a	n/a	GSS132

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	2.65 a	0.010	0.0060	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.419	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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CHAIN OF CUSTODY

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	Flort Overded Mell Complies Declar County Town					e u					e,											
Street Address Street	First Quarterly Well Sampling, Parker County, Street				unty, rexas supposition and improved the property of the state of the					Ethene, Isobutane, Methane,							l			DW - Dr	inking Water round Water	
4800 Sugar Grove Blvd., Suite 390		Billing Inform		(if diffe	erent from	n Rep	ort to)				ž						1	İ			ww	- Water Inface Water
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Stafford TX 77477 Project Contact E-mail Project #		Street Address	i								ngo						İ	ļ			SED-	- Sludge -Sediment
Gabriela Floreslovo											s, s											Other Liquid
Phone # Fax # Client Purchas	e Order #	City		•	Sta	ate		Zip			hen 75											IR - Air Other Solid
261-201-3513											, Ethane, Ethen e by RSK-175										WP	- Wipe ield Blank
Sampler(s) Name(s) Phone # Project Manage Kathleen Buxton 281-240-5200	er	Attention:								<u></u>	RS /										1041	eid Siarik
EASTHECK DIOGOT) 281-298-32-30	Collection	l			Number	of presi	erved Bott	tles		8260B	E 6									1		
			.	- 6	ğ	_	i r	304	H H	втехв	Butane, E											,
Accutest Sample 2 Field ID / Point of Collection Date	Time Sampled By	Matrix bott	les 🛱	NBO	HNO3 H2SO	NONE		NaHSO4	ENCOR	ᇤ	물문						1				LAB U	JSE ONLY
1 WWW13-STR-05/212 5/12/12	11:05 KB	n 6	, _{\(\lambda\)}	/ T	П		П			\supset	X	m										
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TXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	1/2/300 1 Fedex			2 5000				V-1512				2 2)						
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Relinquished by: Date Time:	Received By:				Custod	/ Seal #				Intact Not intac	ct	Preserve	d where	applica	ble	L*		On Ice	<u>ر</u>	Cooler	Tem#2	.8

TC8549: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Page 1 of 3

Accutest Job Number: TC8549	9	Client:	EARTHCON		Proje	ct: FIRST QUAR	TERLY WE	LL SAMPL	ING PAR	KER
Date / Time Received: 5/15/20)12		Delivery Meth	od:	FedEx Airbill	#'s: 80004067208	9		***************************************	
No. Coolers:1	Therm ID:	IRGUN5			Temp Ac	djustment Factor:	-0.5			
Cooler Temps (Initial/Adjusted): #1: (3.3.	(2.8)								
Cooler Security Y o	or N		<u>_Y</u>	or N	Sample Integrity - Doc	umentation	<u>Y</u>	or N		
1. Custody Seals Present: 2. Custody Seals Intact:	□ □ 4.	3. COC P	resent:		Sample labels present of the sample labe		☑			
Cooler Temperature	Y or N	·			 Container labeling com Sample container label 		V			
Temp criteria achieved:	V]			Sample Integrity - Cor	<u>ıdition</u>	<u>Y</u>	or N		
Cooler temp verification: Cooler media:	Infared G Ice (Bag				Sample recvd within HT All containers accounte		☑			
Quality Control Preservatio	Y or N	I N/A	WTE	B STB		u 101.		Intact		
1. Trip Blank present / cooler:			V		Sample Integrity - Inst	ructions	<u>Y</u>	or N	N/A	
2. Trip Blank listed on COC:					Analysis requested is contact.	lear:	V			
3. Samples preserved properly:	V	 			2. Bottles received for un	specified-tests				
4. VOCs headspace free:	Y				Sufficient volume recvo	-	•			
					Compositing instruction	ns clear:			✓	
F					5. Filtering instructions of	ear:			V	
Comments Trip blank is reported i	in job TC853	36.								
										Ì
					:					
Accutest Laboratories V:713.271.4700					55 Harwin Drive 713.271.4770				Houston, TX	

TC8549: Chain of Custody

Page 2 of 4







Problem Resolution

Accutest Job Number: TC8549

CSR: Elessa Sommers

Response Date:

5/16/2012

Response: Trip blank is reported in job TC8536.

4

TC8549: Chain of Custody Page 3 of 4





Sample Receipt Log

Page 3 of 3

Job #: TC8549

Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	Hq	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8549-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8549-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8549-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8549-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8549-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8549-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8549: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8549 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

	R2	Sample identification cross-reference	r;
	R3	Test reports (analytical data sheets) f	or each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
Ģ	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank	·
	R6	Test reports/summary forms for labor	atory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
Ģ	R7	Test reports for project matrix spike/n	natrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
Ģ	R8	Laboratory analytical duplicate (if app	
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		с)	The laboratory's QC limits for analytical duplicates.
Ģ	R9		(Ls) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
Th - F		f	None in Laboratory Devices Objectified and for each product or extrinsic
			item in Laboratory Review Checklist and for each analyte, matrix, and
metnoa ro	or which the i	aboratory does not not NELAC accre	ditation under the Texas Laboratory Accreditation Program.
		•	s laboratory data package. This laboratory is NELAC accredited under the
			analytes, and matrices reported in this data package except as noted in
			by the laboratory and is complete and technically compliant with the
			ne laboratory in the attached exception reports. By my signature below, I
		, , ,	observed by the laboratory as having the potential to affect the quality of
	nave been id	entified by the laboratory in the Labora	atory Review Checklist, and no information or data have been knowingly
withheld.			
Check, if	applicable:	This laboratory meets an exception u	nder 30 TAC&25.6 and was last inspection by
[]		[X TCEQ or [] on April 20	011. Any findings affecting the data in this laboratory data package are
			n. The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/24/2012

Official Title (printed)

Laboratory Director



	L	ABORATORY REVIEW C	CHECKLIST: REPORTABLE	<u>DAT</u>	Ά			
Laboratory	y Name:	Accutest Gulf Coast LRC Date:		5/2	4/20	12		
		First Overtants Well Commisses	First Overtark: Well Compline					
Project Name:		First Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	TC	8549			
Reviewer		Elessa Sommers	Prep Batch Number(s):	_		, VE81	2	
#1	I A ²	DESCRIPTION	Trop Bater Hamber(e).					ER#
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		Did samples meet the laboratory's standard conditions of sample acceptability						
		upon receipt?						
			onditions described in an exception report?	X	Ш			
R2	OI	Sample and quality control (QC) id						
		Are all field sample ID numbers cross	X					
		*	eferenced to the corresponding QC data?	X	Ш			
R3	OI	Test reports	I Mark I al Par Carra				-	
		Were samples prepared and analyze		X	Н			<u> </u>
		standards?	all other raw values bracketed by calibration	Х				
		Were calculations checked by a peer	or supervisor?	X	Н		-	
		Were all analyte identifications check	·	X				
		Were sample detection limits reported		X	П			
			samples reported on a dry weight basis?			Х		
	Were % moisture (or solids) reported for all soil and sediment samples?					Χ		
	Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035? If required for the project, are TIC's reported?				Х			
						Х		<u> </u>
R4	0		Surrogate recovery data					
K4	 	Were surrogate percent recoveries in all samples within the laboratory QC limits?		Х				
				X				
R5	OI	Test reports/summary forms for blank samples						
	Were appropriate type(s) of blanks analyzed? Were blanks analyzed at the appropriate frequency?		Х			П		
			Х					
		Were method blanks taken through the	ne entire analytical process, including	X				
		preparation and, if applicable, cleanu	p procedures?		Ш			
		Were blank concentrations <mql?< td=""><td></td><td>X</td><td></td><td></td><td></td><td></td></mql?<>		X				
R6	OI	Laboratory control samples (LCS):	- V			-		
		Were all COCs included in the LCS?	ire analytical procedure, including prep and	X	Н			—
		cleanup steps?	are analytical procedure, including prep and	X				
		Were LCSs analyzed at required freq	uency?	X	Н			
		Were LCS (and LCSD, if applicable)		X				
		Does the detectablility check sample	data document the laboratory's capability to	Х				_
		detect the COCs at the MDL used to						2
		Was the LCSD RPD within QC limits			Щ	Χ		
R7	OI	Matrix spike (MS) and matrix spike		V				
		Were the project/method specified an Were MS/MSD analyzed at the appro	nalytes included in the MS and MSD?	X	Н			-
		Were MS (and MSD, if applicable) %		+^	Х			1
		Were the MS/MSD RPDs within labo	, , , , , , , , , , , , , , , , , , ,	X	Ĥ			
R8	OI	Analytical duplicate data	,					
	T -	Were appropriate analytical duplicate	es analyzed for each matrix?	Х				
		Were analytical duplicates analyzed a		Х				
			ations within the laboratory QC limits?		Χ			1
R9	OI	Method quantitation limits (MQLs):						
			te included in the laboratory data package?	X	Ш			<u> </u>
			entration of the lowest non-zero calibration	X				_
D40		Are unadjusted MQLs and DCSs incl		Х			3	
R10	OI	Other problems/anomalies Are all known problems/anomalies/sp	X					
			logy used to lower the SDL to minimize the	^	H			
			Inder the Texas Laboratory Accreditation	 ^	H			
			nd methods associated with this laboratory	X				
	1	data package?		1	i l	ı I		1



Laboratory Name:		Accutest Gulf Coast	LRC Date:	5/2	4/20	12		
Project Na	me:	First Quarterly Well Sampling, Pa	rst Quarterly Well Sampling, Pa Laboratory Project Number:		B549)		
Reviewer	Name:	Elessa Sommers Prep Batch Number(s):		GSS132, VE812				
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?						
		Were percent RSDs or correlation coefficient criteria met?		X				
		Was the number of standards recommended in the method used for all analytes?						
			ne lowest and highest standard used to	l x l				1
		calculate the curve?		X				
		Are ICAL data available for all instruments used?						
			verified using an appropriate second source	l x l				1
		standard?						
S2	OI	Initial and continuing calibration ve						
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?						
	_	Was the absolute value of the analyte			Х			
S3	0	Mass spectral tuning		_				
		Was the appropriate compound for the		Х				
		Were ion abundance data within the	method-required QC limits?	Х	_			
S4	0	Internal standards (IS)	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ΧI				
- 05			Were IS area counts and retention times within the method-required QC limits?					
S5	OI	Raw data (NELAC Section 5.5.10)						
		Were the raw data (for example, chromatograms, spectral data) reviewed by an						1
		analyst?						
	0		Were data associated with manual integrations flagged on the raw data?					
S6	-	Dual column confirmation Did dual column confirmation results meet the method-required QC?				Х		
S7	0	Tentatively identified compounds (^		
31			s spectra and TIC data subject to appropriate					
		checks?	ss spectra and Tro data subject to appropriate			Χ		i
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within metho				Х		
S9	ı		kes, and method of standard additions					
			, and the linearity within the QC limits					
		specified in the method?	,			Х		1
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports						
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х				
		evaluation studies?		^				
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	x				
		appropriate source?		_^_				
S13	OI	Compound/analyte identification p						
		Are the procedures for compound/and	,	Х				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with	·	Х				
		Is documentation of the analyst's com		Х				
S15	OI		ion for methods (NELAC Chapter 5)					
		· ·	the data documentated, verified, and	x				i
		validated, where applicable?		_^_				
S16	OI	Laboratory standard operating pro		Х				
	l	Are laboratory SOPs current and on file for each method performed?						



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports										
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/24/2012							
Project Na	me:	First Quarterly Well Sampling	, Pa Laboratory Project Number:	TC8549							
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS132, VE812							
ER# ¹	Description	on .		·							
1	All anomal	ies are discussed in the case narra	tive.								
2	The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.										
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.										
4		ng purposes, the MQL is defined in SDL is defined in the report as the	the report as the RL. The unadjusted MDL.	MQL/RL is reported in the method							
l											
l											

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8549

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries	rogate Recoveries	
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%

Method: SW846 8260B

Blank Spike Summary Job Number: TC8549

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xvlene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8549

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8549

PESTXST EarthCon Consultants **Account:**

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS132-MB	File ID SS002610.D	DF 1	Analyzed 05/22/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8549

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GSS132-BS	SS002611.D	1	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	70-130
74-85-1	Ethene	57.4	60.1	105	70-130
74-84-0	Ethane	43.3	43.5	100	70-130
74-98-6	Propane	60.6	60.3	100	70-130
75-28-5	Isobutane	72.5	70.2	97	70-130
106-97-8	Butane	76.6	69.0	90	70-130



Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8549

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC8541-1MS	SS002618.D	1	05/22/12	FΪ	n/a	n/a	GSS132
TC8541-1	SS002616.D	1	05/22/12	FI	n/a	n/a	GSS132
TC8541-1	SS002617.D	5	05/22/12	FI	n/a	n/a	GSS132

The QC reported here applies to the following samples:

CAS No.	Compound	TC8541-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	357 b	21.5	487	605* a	60-140
74-85-1	Ethene	1.0 U	57.4	46.1	80	60-140
74-84-0	Ethane	3.27	43.3	42.8	91	60-140
74-98-6	Propane	1.5 U	60.6	54.6	90	60-140
75-28-5	Isobutane	1.5 U	72.5	64.2	88	60-140
106-97-8	Butane	1.5 U	76.6	62.0	81	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

⁽b) Result is from Run #2.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8549

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample TC8546-1DUP TC8546-1	File ID SS002628.D SS002627.D	Analyzed 05/22/12 05/22/12	By FI FI	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS132 GSS132
					-2 1	

The QC reported here applies to the following samples:

CAS No.	Compound	TC8546-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	140	0.184	199*	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	8.04	0.0100	200*	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30



05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8550

Sampling Date: 05/12/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Sample Summary

EarthCon Consultants

Job No: TC8550

First Quarterly Well Sampling, Parker County, Texas

Sample Collected			Matr	ix	Client	
Number	Date	Time By	Received	Code	Type	Sample ID
TC8550-1	05/12/12	11:20	05/15/12	AQ	Ground Water	WWW22-SIM-051212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8550

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 3:33:34 PM

1 Sample was collected on 05/12/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8550. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS134

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8551-1DUP, TC8767-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WWW22-SIM-051212

 Lab Sample ID:
 TC8550-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017780.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	93% 100% 96% 97%		79-122% 75-121% 87-119% 80-133%		

 $U = \ Not \ detected \qquad SDL \ - \ Sample \ Detection \ Limit$

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW22-SIM-051212

 Lab Sample ID:
 TC8550-1
 Date Sampled:
 05/12/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002672.D	1	05/24/12	FI	n/a	n/a	GSS134
Run #2	SS002674.D	10	05/24/12	FI	n/a	n/a	GSS134

RSK147 Special List

Compound	Result	MQL	SDL	Units	Q
Methane	0.612 a	0.0050	0.0030	mg/l	
Ethene	0.00050 U	0.0010	0.00050	mg/l	
Ethane	0.0433	0.0010	0.00050	mg/l	
Propane	0.00075 U	0.0015	0.00075	mg/l	
Isobutane	0.00075 U	0.0015	0.00075	mg/l	
Butane	0.00075 U	0.0015	0.00075	mg/l	
	Methane Ethene Ethane Propane Isobutane	Methane 0.612 a Ethene 0.00050 U Ethane 0.0433 Propane 0.00075 U Isobutane 0.00075 U	Methane 0.612 a 0.0050 Ethene 0.00050 U 0.0010 Ethane 0.0433 0.0010 Propane 0.00075 U 0.0015 Isobutane 0.00075 U 0.0015	Methane 0.612 a 0.0050 U 0.0030 U Ethene 0.00050 U 0.0010 U 0.00050 U Ethane 0.0433 U 0.0010 U 0.00050 U Propane 0.00075 U 0.0015 U 0.00075 U Isobutane 0.00075 U 0.0015 U 0.00075 U	Methane 0.612 a 0.0050 0.0030 mg/l Ethene 0.00050 U 0.0010 0.00050 mg/l Ethane 0.0433 0.0010 0.00050 mg/l Propane 0.00075 U 0.0015 0.00075 mg/l Isobutane 0.00075 U 0.0015 0.00075 mg/l

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



PAGE ___ OF ___

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TC8550: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

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Accutest Job Number:	TC8550 C	lient: EARTHCON	Project: FIRST QUART	TERLY WELL SAMPLING PARKER
Date / Time Received:	5/15/2012	Delivery Method:	FedEx Airbill #'s: 800040672089	
No. Coolers: 1	Therm ID: IRC	GUN5	Temp Adjustment Factor:	-0.5
Cooler Temps (Initial/A	djusted): #1: (3.3/2.8)	1		
Cooler Security	Y or N	Y or N	Sample Integrity - Documentation	Y or N
Custody Seals Present:		COC Present: pl Dates/Time OK □	Sample labels present on bottles:	
2. Custody Seals Intact:		pi Dates/Time OR	Container labeling complete: Sample container label / COC agree:	
Cooler Temperature 1. Temp criteria achieved:	Y or N. ✓		Sample Integrity - Condition	Y or N
Cooler temp verification Cooler media:	n: Infared Gun Ice (Bag)	page grant and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second an	1. Sample recvd within HT:	
3. Cooler media. Quality Control Preser		N/A WTB STB	All containers accounted for: Condition of sample:	Intact
1. Trip Blank present / cod			Sample Integrity - Instructions	Y or N N/A
2. Trip Blank listed on CO			1. Analysis requested is clear:	
 Samples preserved pro VOCs headspace free: 			Bottles received for unspecified tests Sufficient volume recvd for analysis:	
4. VOCS fleadspace flee.	2	لبا	Compositing instructions clear:	
			5. Filtering instructions clear:	
Comments Trip blank is	reported in job TC8536.			
			i	
Accutest Laboratories	Markey Association Annual Association (Markey		65 Harwin Drive	Houston, TX 77036
V:713,271.4700		F:	713.271.4770	www/accutest.com

TC8550: Chain of Custody Page 2 of 4





Problem Resolution

Page 2 of 3

Accutest Job Number: TC8550

CSR: Elessa Sommers

Response Date:

5/16/2012

Response: Trip blank is reported in job TC8536.

4

TC8550: Chain of Custody Page 3 of 4





ACCUTEST

Sample Receipt Log

Job #: TC8550

8550 Date / Time Received: 5/15/2012

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	Нф	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8550-1	40mi	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8550-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8550-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8550-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8550-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IRGUN5	3.3	-0.5	2.8
1	TC8550-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8550: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC8550 This data package consists of

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

	R2	Sample identification cross-reference	r;
	R3	Test reports (analytical data sheets) f	or each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
Ģ	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank	·
	R6	Test reports/summary forms for labor	atory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
Ģ	R7	Test reports for project matrix spike/n	natrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
Ģ	R8	Laboratory analytical duplicate (if app	
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		с)	The laboratory's QC limits for analytical duplicates.
Ģ	R9		(Ls) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
Th - F		f	None in Laboratory Devices Objectified and for each product or extrinsic
			item in Laboratory Review Checklist and for each analyte, matrix, and
metnoa ro	or which the i	aboratory does not not NELAC accre	ditation under the Texas Laboratory Accreditation Program.
		•	s laboratory data package. This laboratory is NELAC accredited under the
			analytes, and matrices reported in this data package except as noted in
			by the laboratory and is complete and technically compliant with the
			ne laboratory in the attached exception reports. By my signature below, I
		, , ,	observed by the laboratory as having the potential to affect the quality of
	nave been id	entified by the laboratory in the Labora	atory Review Checklist, and no information or data have been knowingly
withheld.			
Check, if	applicable:	This laboratory meets an exception u	nder 30 TAC&25.6 and was last inspection by
[]		[X TCEQ or [] on April 20	011. Any findings affecting the data in this laboratory data package are
			n. The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

5/24/2012

Official Title (printed)

Laboratory Director



Laboratory Name:		_ABORATORY REVIEW CHECKLIST: REPORTABLE I				5/24/2012			
	. 101110.			J.272012					
		First Quarterly Well Sampling,							
Project Na	me:		aboratory Project Number:	TC8550					
Reviewer	Name:	Elessa Sommers Pi	rep Batch Number(s):	GSS134, VE812					
# ¹	A ²	DESCRIPTION	•	YES	NO	NA^3	NR ⁴ EF		
R1	OI	CHAIN-OF-CUSTODY (C-O-C):							
		Did samples meet the laboratory's stand	dard conditions of sample acceptability	X					
		upon receipt?							
		Were all departures from standard cond	litions described in an exception report?	Х					
R2	OI	Sample and quality control (QC) iden							
		Are all field sample ID numbers cross-re		X					
		Are all laboratory ID numbers cross-refe	erenced to the corresponding QC data?	Х					
R3	OI	Test reports							
		Were samples prepared and analyzed v	within holding times?	Х					
		Other than those results <mql, all<="" td="" were=""><td>l other raw values bracketed by calibration</td><td>X</td><td></td><td></td><td></td></mql,>	l other raw values bracketed by calibration	X					
		standards?							
		Were calculations checked by a peer or	·	Х					
		Were all analyte identifications checked		X					
		Were sample detection limits reported for	X	Ш					
		Were all results for soil and sediment sa		1		Х	_		
		Were % moisture (or solids) reported for		-	Ш	Х	_		
		Were bulk soils/solids samples for volati			Х				
	SW846 Method 5035? If required for the project, are TIC's reported?		-		X				
R4	0	Surrogate recovery data	inted:		\Box				
114	 	Were surrogates added prior to extraction	2002	Х					
			I samples within the laboratory QC limits?	T X					
R5	OI	Test reports/summary forms for blan							
K3 OI		Were appropriate type(s) of blanks analy		Х		Т	$\overline{}$		
		Were blanks analyzed at the appropriate		X					
		Were method blanks taken through the							
		preparation and, if applicable, cleanup p	X						
		Were blank concentrations <mql?< td=""><td></td><td>X</td><td></td><td></td><td></td></mql?<>		X					
R6	OI	Laboratory control samples (LCS):							
		Were all COCs included in the LCS?		Х					
		Was each LCS taken through the entire	analytical procedure, including prep and	X					
		cleanup steps?		^					
		Were LCSs analyzed at required freque	ency?	Х					
		Were LCS (and LCSD, if applicable) %		X					
			ta document the laboratory's capability to	l x					
		detect the COCs at the MDL used to cal	culate the SDLs?	<u> </u>					
		Was the LCSD RPD within QC limits?	" . (TOD) I .		Щ	Х			
R7	OI	Matrix spike (MS) and matrix spike do		V					
		Were the project/method specified analy	,	X	\vdash				
		Were MS/MSD analyzed at the appropri		X	Х				
		Were the MS/MSD RPDs within laborate	· · · · · · · · · · · · · · · · · · ·	X					
	OI	 	ory QO IIIIIIIS!	<u> </u>					
R8	U	Analytical duplicate data Were appropriate analytical duplicates a	analyzed for each matrix?	X		-			
		Were analytical duplicates analyzed at t	,	X	H		-		
		Were RPDs or relative standard deviation	- · · · · · · · · · · · · · · · · · · ·	X	Н	-	+		
R9	OI	Method quantitation limits (MQLs):	one within the laboratory QC liftines:	 ^					
113	0		ncluded in the laboratory data package?	X					
			tration of the lowest non-zero calibration	T X	H		-		
		Are unadjusted MQLs and DCSs includ		 ^`	Х		- ;		
R10	OI	Other problems/anomalies	the second of th						
	T .		ial conditions noted in this LRC and ER?	Х		I	T		
			y used to lower the SDL to minimize the	X					
		Is the laboratory NELAC-accredited und							
			methods associated with this laboratory	X					
		data package?	,	1					



Laboratory Name:		Accutest Gulf Coast	5/24/2012					
Project Na	me:	First Quarterly Well Sampling, Page 1981	First Quarterly Well Sampling, Pa Laboratory Project Number:		3550)		
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	34,	VE81	2	
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?						
		Were percent RSDs or correlation co		Х				
			mended in the method used for all analytes?	Х				
		Vere all points generated between the lowest and highest standard used to						
			alculate the curve?					
		e ICAL data available for all instruments used?						
		as the initial calibration curve been verified using an appropriate second source						
		standard?		Х				
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	Х				
			alyte within the method-required QC limits?	X				<u> </u>
		Nas the ICAL curve verified for each analyte?						
	_	Vas the absolute value of the analyte concentration in the inorganic CCB <mdl?< th=""><th>Х</th><th></th><th></th></mdl?<>				Х		
S3	0	Mass spectral tuning						
		Was the appropriate compound for the		X				
		Were ion abundance data within the	method-required QC limits?	Х				
S4	0	Internal standards (IS)	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	V I				
- 05			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		Were the raw data (for example, chromatograms, spectral data) reviewed by an						
		analyst? Were data associated with manual integrations flagged on the raw data?						<u> </u>
	0		legrations hagged on the raw data?	Х				
S6	-	Did dual column confirmation Did dual column confirmation results meet the method-required QC?				Х		
S7	0	Tentatively identified compounds				^		
31			s spectra and TIC data subject to appropriate					
		checks?	ss spectra and Tro data subject to appropriate			Χ		
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within meth-				Х		
S9	ı	· ·	kes, and method of standard additions					
			, and the linearity within the QC limits		$\overline{}$			
		specified in the method?	,			Х		
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support	ted by the analysis of DCSs?	Х				2
S11	OI	Proficiency test reports						
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х				
		evaluation studies?		^				
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	l _x l				
		appropriate source?		^				
S13	OI	Compound/analyte identification p						
		Are the procedures for compound/an	,	Х				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with	·	Х				
		Is documentation of the analyst's con		Х				
S15	OI		ion for methods (NELAC Chapter 5)					
		<u> </u>	the data documentated, verified, and	x				
		validated, where applicable?		_^_				
S16	OI	Laboratory standard operating pro						
		Are laboratory SOPs current and on f	ile for each method performed?	Х				I



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports									
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	5/24/2012						
Project Na	me:	First Quarterly Well Sampli	ng, Pa Laboratory Project Number:	TC8550						
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS134, VE812						
ER# ¹	Description	on		•						
1	All anomal	ies are discussed in the case na	rrative.							
2		The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.								
3	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.									
4		ng purposes, the MQL is defined SDL is defined in the report as t	I in the report as the RL. The unadjusted the MDL.	MQL/RL is reported in the method						
l										
l										

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8550

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%

Method: SW846 8260B

Blank Spike Summary Job Number: TC8550

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample VE812-BS	File ID E0017764.D	DF 1	Analyzed 05/17/12	By MH	Prep Date n/a	Prep Batch n/a	Analytical Batch VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC8550

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary

Job Number: TC8550

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS134-MB	File ID SS002670.D	DF 1	Analyzed 05/24/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS134

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8550

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample GSS134-BS	File ID SS002671.D	DF	Analyzed 05/24/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS134

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.6	96	70-130
74-85-1	Ethene	57.4	63.5	111	70-130
74-84-0	Ethane	43.3	45.2	104	70-130
74-98-6	Propane	60.6	61.0	101	70-130
75-28-5	Isobutane	72.5	73.1	101	70-130
106-97-8	Butane	76.6	79.2	103	70-130

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8550

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8767-2MS	SS002679.D	1	05/24/12	FI	n/a	n/a	GSS134
TC8767-2	SS002678.D	1	05/24/12	FI	n/a	n/a	GSS134

The QC reported here applies to the following samples:

CAS No.	Compound	TC8767-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	65.5	21.5	42.1	-109* a	60-140
74-85-1	Ethene	ND	57.4	45.4	79	60-140
74-84-0	Ethane	ND	43.3	34.8	80	60-140
74-98-6	Propane	ND	60.6	49.4	81	60-140
75-28-5	Isobutane	ND	72.5	54.6	75	60-140
106-97-8	Butane	ND	76.6	58.7	77	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8550

PESTXST EarthCon Consultants Account:

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8551-1DUP	SS002676.D	1	05/24/12	FI	n/a	n/a	GSS134
TC8551-1	SS002675.D	1	05/24/12	FI	n/a	n/a	GSS134

The QC reported here applies to the following samples:

CAS No.	Compound	TC8551-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	18.4	14.6	23	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	5.81	5.40	7	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





05/24/12



Technical Report for

EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas

Accutest Job Number: TC8551

Sampling Date: 05/14/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com;

ATTN: Gabriela Floreslovo

Total number of pages in report: 25



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro Laboratory Director

Paul K Carrevaro

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

Job No: TC8551

First Quarterly Well Sampling, Parker County, Texas

Sample	Collected			Matrix		Client	
Number	Date	Time By	Received	Code	Type	Sample ID	
TC8551-1	05/14/12	11:10	05/15/12	AQ	Ground Water	WWW24-SMI-051412	





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC8551

Site: First Quarterly Well Sampling, Parker County, Texas Report Date 5/24/2012 3:43:35 PM

1 Sample was collected on 05/14/2012 and received intact at Accutest on 05/15/2012 and properly preserved in 1 cooler at 2.8 Deg C. The sample received an Accutest job number of TC8551. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VE812

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8215-7MS, TC8215-7MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS134

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC8551-1DUP, TC8767-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike amount.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





Sample Results		
Report of Analysis		



Report of Analysis

Client Sample ID: WWW24-SMI-051412

 Lab Sample ID:
 TC8551-1
 Date Sampled:
 05/14/12

 Matrix:
 AQ - Ground Water
 Date Received:
 05/15/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E0017781.D	1	05/17/12	MH	n/a	n/a	VE812
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00025 U 0.00026 U 0.00025 U 0.00071 U	0.0010 0.0010 0.0010 0.0030	0.00025 0.00026 0.00025 0.00071	mg/l mg/l mg/l mg/l	
a.a		D // 1	D // 0	T		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	94% 98% 95% 96%	Run# 2	79-122% 75-121% 87-119% 80-133%		

 $U = \ Not \ detected \qquad SDL \ - \ Sample \ Detection \ Limit$

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



C

Report of Analysis

Client Sample ID: WWW24-SMI-051412

Lab Sample ID: TC8551-1 **Date Sampled:** 05/14/12 Matrix: **Date Received:** 05/15/12 AQ - Ground Water Method: RSKSOP-147/175 Percent Solids: n/a

Project: First Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002675.D	1	05/24/12	FI	n/a	n/a	GSS134
Run #2							

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.0184	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00581	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	
					_	

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Page 1 of 1



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



-	

	9759 9759					
EST	lii	istan a	46 Ta server	diame	- III de como	19156
	l.c.	15 fr f.,	1 1	HITSTED	timer's	1
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CHAIN OF CUSTODY

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EarthCon Constants, Inc.	1	Eiret Ouarton	-l- Wall Campli	Barker (T										ě							, 1			
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4800 Sugar Grot Blvd., Suite 390						Informatic	on (if	differ	rent fro	om Re	port to	a)				Σ.							, 1		, 1	WW - Water
Oily	Zip	City		State		ıy Name										Ethene, Isobutane, Methane, -175							, 1		, '	SW - Surface Water SO - Soil
Stafford FX Project Contact E-mail	77477	Project#			Street Ac	rldross	_							\dashv		opri							, 1		, ,	SL- Sludge SED-Sediment
Gabriela Floresito		i idjour.			0	Missa										, is							, 1		, 1	OI - Oil LIQ - Other Liquid
Phone # Fax #		Client Purchase (Order#		City		_		S	tate			Zip	\dashv		75							, 1		, !	AIR - Air SOL - Other Solid
281-201-3513		<u> </u>														<u> </u>							, 1		, 1	WP - Wipe
Sampler(s) Name(s) KATHUEN BUXTON 281-	Phone #	Project Manager			Attention	ē.										RS							, 1		, 1	FB-Field Blank
MATURE CONTINUE COL	290-0	to _	Collec	etion			_		Number	r of pre	served	Rottle	e .	\dashv	BTEX 8260B	Butane, Ethane, Ethe Propane by RSK-175							, 1		, 1	1
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Accutest Semple# Feld ID / Point of Collect		Date	Time	Sampled By	Matrix	# of botiles	豆	NaOH ZA/NaOH	HN03	NONE	DI Wa	1SP	NaHSO4 ENCORE	ОТНЕЯ	BTE	Pro Pro							, 1		, 1	LAB USE ONLY
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5 Day RUSH		uproved by parent	est Phy. , Date.	ŀ		Commerci							OD For	ırmat			ĺ									
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Emergency & Rush T/A data available VIA L	_ablink			1	l		C	Comme	ercial "E	B" = R	lesults	+ QC	Summ				$\overline{}$									
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TC8551: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number:	C8551	Client:	EARTHCON			Project:	FIRST QUARTE	ERLY WE	LL SAMPLI	NG PARKE	R
Date / Time Received:	5/15/2012		Delivery Method:		FedEx	Airbill #'s:	800040672089	.,.,			
No. Coolers: 1	Therm ID:	IRGUN5			Т	emp Adjus	tment Factor:	-0.5			
Cooler Temps (Initial/Adj	justed): #1: (3.3/2	2.8)									
Cooler Security	Y or N		Y or	N	Sample Integrit	y - Docume	entation	<u>Y</u>	or N		
1. Custody Seals Present:	- L	3. COC P	12.1		1. Sample labels	present on bo	ottles:	•			
2. Custody Seals Intact:	4.	Smpl Date	s/Time OK	V	2. Container label	ing complete	E	✓			
Cooler Temperature	Y or N	_			3. Sample contair	ner label / CC	OC agree:		V		
1. Temp criteria achieved:	v				Sample Integrit	ty - Conditi	<u>on</u>	<u>Y</u>	or N		
Cooler temp verification:	Infared Gu				Sample recvd v	within HT:		\checkmark			
3. Cooler media:	lce (bag)		-		2. All containers a	sccounted for	.	V			
Quality Control Preserva	atio Y or N	N/A		STB	3. Condition of sa	mple:			Intact		
Trip Blank present / coole	hand hour		Z		Sample Integrit	ty - Instruct	<u>tions</u>	<u>Y</u>	or N	N/A	
2. Trip Blank listed on COC:					1. Analysis reque	ested is clear:	:	~			
3. Samples preserved prope	erty.				2. Bottles receive	d for unspec	ified tests		7		
4. VOCs headspace free:					Sufficient volu		•	~			
					4. Compositing in		ear:			✓	
					5. Filtering instru	ctions clear:				✓	
	S IS 11:10 SAME Da ported in job TC853		.O.C.								
11,5 5,011,10	po.102 job 7 0000										
					•						
					1						
Accutest Laboratories V:713.271.4700				10165 Ha F: 713.2	rwin Drive 71.4770					ouston, TX 7703 ww/accutest.com	

TC8551: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC8551

CSR: Elessa Sommers Response Date: 5/16/2012

Response: The collection time was not recorded on the chain-of-custody. Collection time was obtained from the container labels.

Trip blank is reported in job TC8536.

TC8551: Chain of Custody Page 3 of 4





Page 3 of 3

Job #: TC8551

CCUTEST

Date / Time Received: 5/15/2012 9:45:00 AM

Initials: BG

Client: EARTHCON

Cooler#	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC8551-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8551-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8551-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
11	TC8551-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8551-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8
1	TC8551-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.3	-0.5	2.8

TC8551: Chain of Custody

Page 4 of 4





Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review checklist, and the following reportable data:

TC8551 This data package consists of

[]

QA Manager Name (Printed)

Paul Canevaro

Signature

Paul K Canevaro

	IX I	rield chain-oi-custody docum	entation,
	R2	Sample identification cross-re	ference;
	R3	Test reports (analytical data s	heets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data inclu	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms f	or blank samples;
	R6	Test reports/summary forms f	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicat	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation lin	nits (MQLs) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method f	or which the	laboratory does not hold NELA	C accreditation under the Texas Laboratory Accreditation Program.
Release	Statement	: I am responsible for the releas	e of this laboratory data package. This laboratory is NELAC accredited under the
Texas La	aboratory Ac	creditation Program for all the m	ethods, analytes, and matrices reported in this data package except as noted in
the Exce	ption Repor	t. This data package has been re	eviewed by the laboratory and is complete and technically compliant with the
requirem	ents of the i	nethods used, except where not	ed by the laboratory in the attached exception reports. By my signature below, I
affirm to	the best of r	ny knowledge, all problems/anoi	malies, observed by the laboratory as having the potential to affect the quality of
the data,	have been	identified by the laboratory in the	Laboratory Review Checklist, and no information or data have been knowingly
withheld.		•	
Check, i	f applicable	: This laboratory meets an exce	eption under 30 TAC&25.6 and was last inspection by
[]		[X1TCEQ or [1] on	April 2011. Any findings affecting the data in this laboratory data package are
			ts herein. The official signing the cover page of the report in which these data are
			ing this data package and is by signature affirming the above release statement
			5 , 5

Official Title (printed)

Laboratory Director

5/24/2012



		ABORATORY REVIEW CH	HECKLIST: REPORTABLE	<u>DA</u> I	Α			
Laboratory	/ Name:	Accutest Gulf Coast	.RC Date:	5/2	4/20	12		
		First Overtank Well Committee						
Project Na	mo:	First Quarterly Well Sampling, Parker County, Texas	aboratory Project Number:	T.	8551			
Reviewer	Name:		Prep Batch Number(s):	+		VE81	2	
#1	I A ²	DESCRIPTION I	Top Baton Hambor(o).					ER#5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
			dard conditions of sample acceptability	X				
		upon receipt?						<u> </u>
			ditions described in an exception report?	X				<u> </u>
R2	OI	Sample and quality control (QC) ider						
		-	referenced to the laboratory ID numbers?	X				
		•	erenced to the corresponding QC data?	X				
R3	OI	Test reports						
		Were samples prepared and analyzed		X				<u> </u>
		other than those results < MQL, were all standards?	Il other raw values bracketed by calibration	X				İ
		Were calculations checked by a peer or	r supervisor?	X				
		Were all analyte identifications checked	X					
		Were sample detection limits reported f		X				
			amples reported on a dry weight basis?			Х		
		Were % moisture (or solids) reported for				Χ		
		· ·	tile analysis extracted with methanol per			Χ		
		SW846 Method 5035?		-				
R4	0	If required for the project, are TIC's repo Surrogate recovery data	orted?			Χ		
K4	"	Were surrogates added prior to extracti	ion?	Х				
			Ill samples within the laboratory QC limits?	T X				
R5	OI	Test reports/summary forms for blar	· · · · · · · · · · · · · · · · · · ·	,				
110		Were appropriate type(s) of blanks ana	Х					
		Were blanks analyzed at the appropriate	te frequency?	Х				
		Were method blanks taken through the	X					
		preparation and, if applicable, cleanup	procedures?					<u> </u>
		Were blank concentrations <mql?< td=""><td></td><td>X</td><td></td><td></td><td></td><td></td></mql?<>		X				
R6	OI	Laboratory control samples (LCS): Were all COCs included in the LCS?						
			e analytical procedure, including prep and	X				
		cleanup steps?	c analytical procedure, moldaling prop and	X				İ
		Were LCSs analyzed at required freque	ency?	X				
		Were LCS (and LCSD, if applicable) %	•	Х				
		Does the detectablility check sample da	ata document the laboratory's capability to	X				2
		detect the COCs at the MDL used to ca	alculate the SDLs?					
		Was the LCSD RPD within QC limits?				Χ		
R7	OI	Matrix spike (MS) and matrix spike d		V				
		Were the project/method specified anal Were MS/MSD analyzed at the appropriate the specified analyzed at the specified at the specified analyzed at the specified at the specified analyzed at the		X				-
		Were MS (and MSD, if applicable) %R:		+^	Х			1
		Were the MS/MSD RPDs within laborar	<u> </u>	X				Ė
R8	OI	Analytical duplicate data	,					
		Were appropriate analytical duplicates	analyzed for each matrix?	Х				
		Were analytical duplicates analyzed at	the appropriate frequency?	Х				
		Were RPDs or relative standard deviati	ions within the laboratory QC limits?	Х				
R9	OI	Method quantitation limits (MQLs):						
			included in the laboratory data package?	X				<u> </u>
		·	ntration of the lowest non-zero calibration	X	V			_
R10	OI	Are unadjusted MQLs and DCSs include Other problems/anomalies	ded in the laboratory data package?		Х			3
KIU	0		cial conditions noted in this LRC and ER?	X				
			gy used to lower the SDL to minimize the	^				
		Is the laboratory NELAC-accredited und		Ť				
	1			X				ĺ
		Program for the analytes, matrices, and	d methods associated with this laboratory	1 ^				ļ



Laboratory Name:		Accutest Gulf Coast LRC Date:				5/24/2012			
Project Na	me:	First Quarterly Well Sampling, Pa	terly Well Sampling, Pa Laboratory Project Number:		B551				
Reviewer	Name:	Elessa Sommers	Prep Batch Number(s):	GSS1	34,	VE81	2		
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER #5	
S1	OI	Initial calibration (ICAL)							
		Were response factors and/or relative	e response factors for each analyte within QC	х					
		limits?							
		Were percent RSDs or correlation co		Х					
			mended in the method used for all analytes?	Х					
		Were all points generated between the	l x l				l		
		calculate the curve?							
		Are ICAL data available for all instrum		Х					
			verified using an appropriate second source	l x l					
		standard?							
S2	OI		erification (ICCV AND CCV) and continuing						
		Was the CCV analyzed at the method	1 ,	Х					
		Were percent differences for each an	Х				<u> </u>		
		Was the ICAL curve verified for each	Х						
	_	Was the absolute value of the analyte			Х				
S3	0	· · · · ·	Mass spectral tuning						
		Was the appropriate compound for the		X					
		Were ion abundance data within the	method-required QC limits?	Х	_				
S4	0	Internal standards (IS)		V I					
- 05			nes within the method-required QC limits?	Х					
S5	OI		Raw data (NELAC Section 5.5.10) Were the raw data (for example, chromatograms, spectral data) reviewed by an						
		, , , , , , , , , , , , , , , , , , , ,	Х						
		analyst? Were data associated with manual integrations flagged on the raw data?						<u> </u>	
	0	Dual column confirmation	Х						
S6	-	Did dual column confirmation results			Х				
S7	0	Tentatively identified compounds (^			
31			s spectra and TIC data subject to appropriate						
		checks?	is specific and The data subject to appropriate			Χ			
S8	ı	Interference Check Sample (ICS) r	esults						
		Were percent recoveries within method				Х			
S9	ı		kes, and method of standard additions						
			, and the linearity within the QC limits						
		specified in the method?	, ,			Х			
S10	OI	Method detection limit (MDL) studi	es						
		Was a MDL study performed for each	reported analyte?	Х					
		Is the MDL either adjusted or support	ed by the analysis of DCSs?	Х				2	
S11	OI	Proficiency test reports							
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х					
		evaluation studies?		^					
S12	OI	Standards documentation							
		Are all standards used in the analyse	s NIST-traceable or obtained from other	l _x l					
		appropriate source?		^					
S13	OI	Compound/analyte identification p							
		Are the procedures for compound/and	,	Х					
S14	OI	Demonstration of analyst compete							
		Was DOC conducted consistent with	· · · · · · · · · · · · · · · · · · ·	Х					
		Is documentation of the analyst's com		Х					
S15	OI		ion for methods (NELAC Chapter 5)						
		· ·	the data documentated, verified, and	x					
		validated, where applicable?		_^_					
S16	OI	Laboratory standard operating pro		Х					
	Are laboratory SOPs current and on file for each method performed?							I	



ame:	Accutest Gulf Coast							
	Acculest Guil Coast	LRC Date:	5/24/2012					
э:	First Quarterly Well Sampling, Pa	Laboratory Project Number:	TC8551					
lame:	Elessa Sommers	Prep Batch Number(s):	GSS134, VE812					
escriptio	n							
II anomalie	es are discussed in the case narrative	ı.						
The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds reported are not listed or do not have values in the Texas TRRP PCL tables.								
	01 1	ents the unadjusted MQL. The DCS is on file i	n the laboratory and is not					
	01 1	•	reported in the method					
	escriptio I anomalione Labora o not have or reportin cluded in or reportin	escription If anomalies are discussed in the case narrative the Laboratory does not perform DCS analysis for not have values in the Texas TRRP PCL table or reporting purposes, the method blank represible of the laboratory data package. The proporting purposes, the MQL is defined in the laboratory data package.	escription Il anomalies are discussed in the case narrative. The Laboratory does not perform DCS analysis for Method RSKSOP-147/175. The compounds on the not have values in the Texas TRRP PCL tables. The porting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the text of the control of the text of the control of the text					

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC8551

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-MB	E0017766.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.25	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l
108-88-3	Toluene	ND	1.0	0.26	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	75-121%
2037-26-5	Toluene-D8	99%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Blank Spike Summary Job Number: TC8551

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE812-BS	E0017764.D	1	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.4	98	76-118
100-41-4	Ethylbenzene	25	24.7	99	75-112
108-88-3	Toluene	25	23.7	95	77-114
1330-20-7	Xylene (total)	75	72.4	97	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	79-122%
17060-07-0	1,2-Dichloroethane-D4	103%	75-121%
2037-26-5	Toluene-D8	100%	87-119%
460-00-4	4-Bromofluorobenzene	97%	80-133%



Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary Job Number: TC8551

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC8215-7MS	E0017783.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7MSD	E0017784.D	10	05/17/12	MH	n/a	n/a	VE812
TC8215-7	E0017782.D	10	05/17/12	MH	n/a	n/a	VE812

The QC reported here applies to the following samples:

CAS No.	Compound	TC8215-7 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1030	250	1260	92	1280	100	2	76-118/16
100-41-4	Ethylbenzene	26.7	250	272	98	267	96	2	75-112/12
108-88-3	Toluene	ND	250	246	98	240	96	2	77-114/12
1330-20-7	Xylene (total)	70.6	750	809	98	794	96	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC8215-7	Limits
1868-53-7	Dibromofluoromethane	92%	94%	92%	79-122%
17060-07-0	1,2-Dichloroethane-D4	98%	100%	99%	75-121%
2037-26-5	Toluene-D8	98%	97%	96%	87-119%
460-00-4	4-Bromofluorobenzene	99%	95%	98%	80-133%





GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC8551

PESTXST EarthCon Consultants **Account:**

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS134-MB	File ID SS002670.D	DF 1	Analyzed 05/24/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS134

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Page 1 of 1

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC8551

Account: PESTXST EarthCon Consultants

First Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS134-BS	File ID SS002671.D	DF 1	Analyzed 05/24/12	By FI	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS134

The QC reported here applies to the following samples:

TC8551-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.6	96	70-130
74-85-1	Ethene	57.4	63.5	111	70-130
74-84-0	Ethane	43.3	45.2	104	70-130
74-98-6	Propane	60.6	61.0	101	70-130
75-28-5	Isobutane	72.5	73.1	101	70-130
106-97-8	Butane	76.6	79.2	103	70-130



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Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC8551

Account: PESTXST EarthCon Consultants

Project: First Quarterly Well Sampling, Parker County, Texas

Sample TC8767-2MS TC8767-2	File ID SS002679.D SS002678.D	Analyzed 05/24/12 05/24/12	By FI FI	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS134 GSS134

The QC reported here applies to the following samples:

TC8551-1

CAS No.	Compound	TC8767-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	65.5	21.5	42.1	-109* a	60-140
74-85-1	Ethene	ND	57.4	45.4	79	60-140
74-84-0	Ethane	ND	43.3	34.8	80	60-140
74-98-6	Propane	ND	60.6	49.4	81	60-140
75-28-5	Isobutane	ND	72.5	54.6	75	60-140
106-97-8	Butane	ND	76.6	58.7	77	60-140

⁽a) Outside control limits due to high level in sample relative to spike amount.

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Method: RSKSOP-147/175

Duplicate Summary Job Number: TC8551

PESTXST EarthCon Consultants Account:

Project: First Quarterly Well Sampling, Parker County, Texas

Sample TC8551-1DUP TC8551-1	File ID SS002676.D SS002675.D	Analyzed 05/24/12 05/24/12	By FI FI	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS134 GSS134

The QC reported here applies to the following samples:

TC8551-1

CAS No.	Compound	TC8551-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	18.4	14.6	23	30
74-85-1	Ethene	1.0 U	ND	nc	30
74-84-0	Ethane	5.81	5.40	7	30
74-98-6	Propane	1.5 U	ND	nc	30
75-28-5	Isobutane	1.5 U	ND	nc	30
106-97-8	Butane	1.5 U	ND	nc	30





 δD

 $\delta^{18}O$

Lab #: 249310 Job #: 18314

Sample Name/Number: WWW11-AND-051112

Company: Oil Tracers, LLC

Date Sampled: 5/11/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Component

Date Received: 5/25/2012 Date Reported: 7/02/2012

 $\delta^{13}C$

Chemical

nd

nd

	mol. %	%	%	%
Carbon Monoxide	0.049			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.84			
Oxygen	8.62			
Nitrogen	89.10			
Carbon Dioxide	0.33			
Methane	0.0602			
Ethane	0.0009			
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1 Specific gravity, calculated: 0.988

Remarks:

Iso-pentane -----N-pentane -----

Hexanes + -----

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.79

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.



0100

Lab #: 249311 Job #: 18314

Sample Name/Number: WWW23-HUS-051112

Company: Oil Tracers, LLC

Date Sampled: 5/11/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Chamaiaal

Component	Chemical	δ^{13} C	δD	δ^{18} O
	mol. %	%	%。	%
Carbon Monoxide	0.046			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.90			
Oxygen	7.33			
Nitrogen	90.22			
Carbon Dioxide	0.24			
Methane	0.264			
Ethane	0.0038			
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 3 Specific gravity, calculated: 0.985

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.77

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.



Lab #: 249312 Job #: 18314

Sample Name/Number: WWW02-PER-051112

Company: Oil Tracers, LLC

Date Sampled: 5/11/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical	$\delta^{13}C$	δD	$\delta^{18} O$
Component	mol. %	‰	‰	%。
Carbon Monoxide	0.072			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	0.675			
Oxygen	4.51			
Nitrogen	29.21			
Carbon Dioxide	0.30			
Methane	61.11	-49.93	-187.2	
Ethane	4.10	-32.03		
Ethylene	0.0003			
Propane	0.0183			
Propylene	nd			
Iso-butane	0.0046			
N-butane	0.0013			
Iso-pentane	0.0010			
N-pentane	nd			
Hexanes +	0.0010			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 693

Specific gravity, calculated: 0.728

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.70

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.



Lab #: 249313 Job #: 18314

Sample Name/Number: WWW09-STI-051112

Company: Oil Tracers, LLC

Date Sampled: 5/11/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical	δ^{13} C	δD	$\delta^{18} O$
Component	mol. %	%。	%。	%。
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	0.714			
Oxygen	0.056			
Nitrogen	29.81			
Carbon Dioxide	0.35			
Methane	63.00	-46.65	-186.0	
Ethane	4.52	-33.51		
Ethylene	nd			
Propane	1.18	-29.71		
Propylene	nd			
Iso-butane	0.127			
N-butane	0.187			
Iso-pentane	0.0301			
N-pentane	0.0166			
Hexanes +	0.0095			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 761

Specific gravity, calculated: 0.726

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.66

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.



Lab #: 249314 Job #: 18314

Sample Name/Number: WWW07-MER-051112

Company: Oil Tracers, LLC

Date Sampled: 5/11/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical mol. %	δ ¹³ C ‰	δD ‰	δ ¹⁸ Ο ‰
Carbon Monoxide	0.025			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.61			
Oxygen	0.083			
Nitrogen	82.97			
Carbon Dioxide	0.20			
Methane	14.90	-43.45	-143.0	
Ethane	0.210	-16.1		
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	0.0008			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	8000.0			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 155

Specific gravity, calculated: 0.914

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.76

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



Lab #: 249315 Job #: 18314

Sample Name/Number: WWW13-STR-051212

Company: Oil Tracers, LLC

Date Sampled: 5/12/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical mol. %	δ ¹³ C ‰	δD ‰	δ ¹⁸ Ο ‰
Carbon Monoxide	0.034			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.20			
Oxygen	0.038			
Nitrogen	59.94			
Carbon Dioxide	0.30			
Methane	36.60	-45.94	-178.3	
Ethane	1.89	-32.04		
Ethylene	nd			
Propane	0.0003			
Propylene	nd			
Iso-butane	nd			
N-butane	0.0009			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	0.0006			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 404

Specific gravity, calculated: 0.824

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.68

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.



Lab #: 249316 Job #: 18314

Sample Name/Number: WWW22-SIM-051212

Company: Oil Tracers, LLC

Date Sampled: 5/12/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical	$\delta^{13}C$	δD	$\delta^{18} O$
o imponent	mol. %	%。	%	%。
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.54			
Oxygen	0.096			
Nitrogen	78.18			
Carbon Dioxide	0.19			
Methane	19.54	-44.24	-151.7	
Ethane	0.458	-23.4		
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	0.0003			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 206

Specific gravity, calculated: 0.894

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.71

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



Lab #: 249317 Job #: 18314

Sample Name/Number: WWW04-ABB-051212

Company: Oil Tracers, LLC

Date Sampled: 5/12/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical	$\delta^{13}C$	δD	$\delta^{18}O$
	mol. %	%	%。	%。
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.73			
Oxygen	0.084			
Nitrogen	89.68			
Carbon Dioxide	0.16			
Methane	8.21	-44.40	-112.0	
Ethane	0.136	-23.6		
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	0.0011			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 86

Specific gravity, calculated: 0.942

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.73

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



Lab #: 249318 Job #: 18314

Sample Name/Number: WWW05-WEL-051212

Company: Oil Tracers, LLC

Date Sampled: 5/12/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical mol. %	δ ¹³ C ‰	δD ‰	δ ¹⁸ Ο ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.87			
Oxygen	0.13			
Nitrogen	92.13			
Carbon Dioxide	0.22			
Methane	5.60	-44.28	-103.1	
Ethane	0.0542			
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	0.0008			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 58

Specific gravity, calculated: 0.953

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.74

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.



Lab #: 249319 Job #: 18314

Sample Name/Number: WWW25-MAT-051212

Company: Oil Tracers, LLC

Date Sampled: 5/12/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical mol. %	δ ¹³ C ‰	δD ‰	δ ¹⁸ Ο ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.60			
Oxygen	0.11			
Nitrogen	84.13			
Carbon Dioxide	0.15			
Methane	13.71	-44.51	-133.0	
Ethane	0.263	-27.2		
Ethylene	nd			
Propane	0.0307			
Propylene	nd			
Iso-butane	0.0039			
N-butane	0.0053			
Iso-pentane	0.0007			
N-pentane	nd			
Hexanes +	0.0007			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 145 Sp

Specific gravity, calculated: 0.919

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.72

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



Lab #: 249320 Job #: 18314

Sample Name/Number: WWW06-THO-051312

Company: Oil Tracers, LLC

Date Sampled: 5/13/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical	$\delta^{13}C$	δD	$\delta^{18} O$
Сотронот	mol. %	%。	%.	%。
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.73			
Oxygen	0.095			
Nitrogen	86.39			
Carbon Dioxide	0.28			
Methane	11.37	-42.16	-131.8	
Ethane	0.134	-16.0		
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 117

Specific gravity, calculated: 0.929

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.77

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



Lab #: 249321 Job #: 18314

Sample Name/Number: WWW21-VAN-051312

Company: Oil Tracers, LLC

Date Sampled: 5/13/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical	δ^{13} C	δD	$\delta^{18} O$
o imponent	mol. %	%	‰	%。
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.83			
Oxygen	5.74			
Nitrogen	89.50			
Carbon Dioxide	1.05			
Methane	1.85	-17.4	90	
Ethane	0.0252			
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 19

Specific gravity, calculated: 0.981

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.79

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Isotopes obtained online via GC-C/P-IRMS



Lab #: 249322 Job #: 18314

Sample Name/Number: WWW19-WIL-051312

Company: Oil Tracers, LLC

Date Sampled: 5/13/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical	$\delta^{13}C$	δD	$\delta^{18}O$
	mol. %	%。	‰	‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.41			
Oxygen	0.042			
Nitrogen	71.34			
Carbon Dioxide	0.23			
Methane	26.33	-43.85	-160.9	
Ethane	0.650	-20.5		
Ethylene	nd			
Propane	0.0004			
Propylene	nd			
Iso-butane	nd			
N-butane	0.0008			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 278

Specific gravity, calculated: 0.866

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.74

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



Lab #: 249323 Job #: 18314

Sample Name/Number: WWW14A-HUR-051312

Company: Oil Tracers, LLC

Date Sampled: 5/13/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical mol. %	δ ¹³ C ‰	δD ‰	δ ¹⁸ Ο ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.61			
Oxygen	0.086			
Nitrogen	80.47			
Carbon Dioxide	0.47			
Methane	16.89	-43.84	-150.6	
Ethane	0.479	-27.5		
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 180

Specific gravity, calculated: 0.907

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.75

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



Lab #: 249324 Job #: 18314

Sample Name/Number: WWW15-HUR-051312

Company: Oil Tracers, LLC

Date Sampled: 5/13/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical	δ^{13} C	δD	$\delta^{18} O$
Component	mol. %	‰	‰	%。
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.50			
Oxygen	0.076			
Nitrogen	73.86			
Carbon Dioxide	0.23			
Methane	23.50	-46.14	-156.8	
Ethane	0.834	-30.1		
Ethylene	nd			
Propane	0.0008			
Propylene	nd			
Iso-butane	nd			
N-butane	0.0016			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 253

Specific gravity, calculated: 0.878

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.74

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



Lab #: 249325 Job #: 18314

Sample Name/Number: WWW01-WEL-051412

Company: Oil Tracers, LLC

Date Sampled: 5/14/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

Component	Chemical mol. %	δ ¹³ C ‰	δD ‰	δ ¹⁸ Ο ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.59			
Oxygen	0.069			
Nitrogen	79.00			
Carbon Dioxide	0.33			
Methane	18.47	-46.24	-178.2	
Ethane	0.541	-20.5		
Ethylene	nd			
Propane	nd			
Propylene	nd			
Iso-butane	nd			
N-butane	0.0004			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 197

Specific gravity, calculated: 0.900

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.76

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

^{**} Ethane isotopes obtained online via GC-C-IRMS



0100

Lab #: 249326 Job #: 18314

Sample Name/Number: WWW24-SMI-051412

Company: Oil Tracers, LLC

Date Sampled: 5/14/2012

Container: Dissolved Gas Bottle

Field/Site Name: First Quarterly Well Sampling

Location: Parker County, TX

Formation/Depth:

Sampling Point:

Date Received: 5/25/2012 Date Reported: 7/02/2012

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Component	Chemical	δ^{13} C	δD	$\delta^{18}O$
	mol. %	%	%	%。
Carbon Monoxide	0.13			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.68			
Oxygen	15.61			
Nitrogen	81.72			
Carbon Dioxide	0.39			
Methane	0.455			
Ethane	0.0143			
Ethylene	nd			
Propane	0.0004			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 5 Specific gravity, calculated: 0.996 Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.78

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.